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Some Common Ailments of Ewes and Lambs.*

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When asked to submit for your consideration a paper on Sheep Diseases, I felt that there were certain advantages in being offered so wide a field from which to choose a subject. On considering how to comply with this request, it occurred to me that to group together a number of seasonal conditions—some of which are but very imperfectly understood—and briefly outline the facts known with regard to them would be more profitable in that it would afford a wider basis for discussion than to deal at length with one or two diseases on which it is possible to speak with some degree of assurance. I have, accordingly, chosen as the subject of my remarks a few of the more important conditions incidental to the breeding season in the hope of obtaining the benefit of your wide experience of these subjects as an aid to the further investigation of the many problems which are yet to be elucidated.

Abortion.

The vast majority of outbreaks of abortion in ewes are specific in nature. A very large number have been brought to our notice during the last five or six years, and there have only been two or three instances in which we have been unable to show that they were due to bacterial infection. Two distinct forms of the condition have been described—the vibrionic and the paratyphoid. Both appear to be quite common, though the latter is the more prevalent in this district. Either form may cause considerable losses, and in exceptional cases as many as 60 per cent. of a flock may abort. The period of pregnancy at which the abortions commence varies. In the paratyphoid form it is usually not more than six weeks before lambing is due to begin, but in the vibrionic form it may be considerably earlier. In the latter form the ewe may show evidence of uterine discharge some days before the act of abortion and the fœtus when passed may be putrid, but with the paratyphoid type there is usually not much warning of impending abortion and the fœtus appears quite fresh. Indeed, one usually has no difficulty in isolating the causal organism in pure culture. It would, however, be unwise to draw any conclusions as to the nature of an outbreak from an observation of the symptoms shown by the ewe or the condition of the abort, for we have seen an outbreak in our own flock due to a vibrio in which abortions occurred very late in pregnancy and the fœtus was quite fresh. This particular vibrio differed in several respects from that originally described by M'Fadyean and Stockman as the cause of ewe abortion.

Investigation of a recent outbreak of disease has confirmed the observation that ewes infected with the paratyphoid organism—which appears to be more closely related to the bacillus of Gærtner than to other members of the group—may carry their lambs to full term. In this particular case there were no premature births but a number of full time lambs were born dead and others which were very weak succumbed soon after birth.

Up to the time that Glover and myself published a report on this condition we had not observed any ill effects among the aborting ewes apart from a temporary loss of condition, but we have since heard of a case in which over twenty animals died suddenly shortly after abortion. From an examination of such material as we could obtain from these cases we were unable to find any evidence that the condition had become septicæmic or to arrive at a definite conclusion as to the cause of death. We know, however, from experience of testing the safety of samples of vaccine, that this organism may, under certain conditions, become very toxic, so much so that even fairly small doses of killed culture are sufficient to kill a sheep in less than twelve hours. Whether these facts are in any way connected with each other remains to be determined.

As regards the spread of both forms of the condition, the chief factors involved are infected animals and contaminated ground and particularly the former. There is strong presumptive evidence to show that animals may harbour infection during the interval between two successive breeding seasons and pass it on to other animals with which they are mixed. A single animal infected with the paratyphoid organism, when placed in a flock, will quickly infect a large number. Then again, this organism will survive in artificial culture for well over a year, and may possibly maintain its existence in the soil for some such period. In the outbreak of vibrionic abortion in part of the laboratory flock—to which reference has already been made—it appeared that infection was introduced by a particular ram. This disease appeared in the batch of ewes with which this animal was running. Other batches with which they had been in contact up to the commencement of the breeding season and which were served by other rams remained quite free. When this ram was killed, the vibrio was found to be present in its liver and blood stream.

Control Measures.

Many difficulties are encountered in attempting to control the disease in either of its recognised forms. There is no reason to suspect the presence of infection until the animals commence to abort, and by this time it has become so well established that it is unlikely that the use of a serum or vaccine would serve to avert its consequences. Fortunately, however, the losses, serious as they are, do not appear to recur season after season in the same flock. The animals appear to acquire a sufficient degree of immunity to protect them during

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the following season. We have not heard of a recurrence of the disease in any flock except where fresh animals have been introduced during the period of pregnancy. Infected animals may be detected by means of the agglutination test, and when it is desired to safeguard a clean flock from infection it is a wise precaution to apply this test to any newly purchased animals.

Pregnancy Disease of Ewes.

This condition is also known under various other names: Fatty Infiltration of the Liver, Ante-partum paralysis, Preparturient eclampsia, Acidosis.

It appears to be of common occurrence in many parts of the world, and affects chiefly the older ewes in a flock during the last few weeks of pregnancy. The animals, as a rule, are in good condition, and are being artificially fed, though this is not always the case. The majority are found to be carrying two or more lambs. The condition appeared to be especially prevalent during the early months of this year. The symptoms, which have frequently been described, consist of dulness, loss of appetite, slow and unsteady gait. The animals exhibit nervous movements of the head and ears, and the head is turned to one side or held high and may be thrown back. They are apt to walk into objects as though the sight is impaired, and may push their heads against hurdles or other obstacles. They tend to move to one side and may stagger and fall to the ground, where they remain in a semi-comatose condition. Death occurs after a day or two, though some animals linger for a week or more. Recovery is rare except where parturition takes place, in which case the symptoms usually disappear.

On *post-mortem* examination the liver is the only organ in which gross changes are constantly found. These take the form of fatty infiltration which is usually present in an advanced degree. The liver is enlarged and paler than usual. In some cases the epithelial cells of the tubules of the kidney also contain a quantity of fat. Dimock, Healy and Bullard report that the urine is acid and contains acetone, albumen and an increased quantity of ammonia, and state that examination of the blood reveals evidence of acidosis.

The etiology of this condition remains to be determined. M'Fadyean is of opinion that the liver lesion is the immediate cause of the illness, and that the degree of fatty infiltration present is sufficient to account for death, as it entails almost complete abolition of the normal liver functions. In support of this view he points out that the sudden and complete loss of appetite, great depression, initial constipation and disturbance of vision which are the symptoms of this disease, are the result of almost complete arrest of such functions.

Marsh, on the other hand, is inclined to regard the disease as an auto-intoxication, and suggests that the fatty condition of the liver which appears to be a normal accompaniment of advanced pregnancy is one of the factors which render the ewe susceptible to such intoxication, and is probably not in itself a lesion of the disease.

Various other views have been put forward to the effect that the condition is to be regarded as eclampsia, as uremic poisoning, as an acidosis and as an infectious disease. It is evident, therefore, that further investigation is needed before it is possible to arrive at a definite conclusion. In the meantime, it would appear to be a wise precaution to keep pregnant ewes from becoming excessively fat and to provide them with a laxative diet and plenty of exercise. Marsh suggests that the administration of glucose might be tried as a form of treatment in view of the fact that a condition of acidosis has been found to exist.

Mastitis.

Two clinical forms of the disease are recognised by shepherds—black garget and stone garget. The former condition, which is sudden in its onset, runs an acute course and often proves fatal, is so-named because the affected udder quickly assumes a dark livid appearance. The term "stone garget" includes cases of a more chronic character which result in permanent induration of a definite area of the gland tissue. A report on the examination of a number of cases of the disease has recently been published by Leyshon. During the time that the investigation was in progress the amount of material obtainable was not nearly so abundant as had been expected, and it seems possible that the incidence of the disease has been over-estimated. At any rate, no serious outbreak was encountered during that period, and the cases available were all more or less isolated ones. Although the scope of the investigation was consequently somewhat limited, it was possible to obtain a certain amount of useful information regarding the etiology of the condition. Staphylococci were found to be present in two-thirds of the cases, while the remainder were associated with organisms of various other types, namely, streptococci, coliform bacilli of various kinds, bipolar organisms of the Pasteurella group, and diphtheroids. The micrococcus described by Nocard and other Continental workers as being a frequent cause of mastitis in ewes was not encountered in this series of cases.

Anærobic Infections.

The subject of anærobic infections of sheep would in itself provide material for several papers of this kind, and it is not proposed, on this occasion, to do more than to consider briefly a few relevant points.

(a) *Infection following parturition in the ewe.*

Outbreaks of tetanus occasionally occur among ewes shortly after lambing, and may result in heavy losses. According to Moussu, the disease usually develops in an acute form within four or five days. Under similar circumstances, cases of blackleg have been reported on the Continent. While we, personally, have not observed either of these conditions, we have seen an outbreak of *B. welchii* infection in ewes which involved the death of a number of animals shortly after parturition.

These few examples will serve to illustrate the need of prompt determination of the nature of puerperal infection in individual cases as there is always the possibility that further losses might be prevented by the use of the appropriate serum. Indeed, the etiology of the condition in general requires further investigation, and we should appreciate any help you could give us in obtaining material for this purpose.

(b) *Infection following castration and docking.*

The frequency with which cases of tetanus occur after these operations is generally recognised, but *B. tetani* is not the only anærobe which may gain entrance to such wounds. For instance, Marsh, Welch and Jungherr have recorded outbreaks of *B. chauvoei* infection in America, and we have had cases in which death was attributable to *B. welchii* and others in which *Vibrion septique* was the causal agent.

Although it has no direct bearing on this subject, it may be permissible to mention another condition occasionally seen in sheep which appears to be due to the last-named organism and might be regarded as an atypical form of braxy. Death takes place very quickly and the majority of animals are found dead. On *post-mortem* examination, there is excess of blood-stained fluid in the serous cavities, the lining membranes of which show petechiæ, as do some of the muscles. Gastro-enteritis is usually present in a moderate degree but there is no well-defined lesion of the fourth stomach such as occurs in recognised cases of braxy. In each instance *Vibrion septique* has been isolated from the peritoneal fluid, liver and heart blood of such animals, but it appeared to be of doubtful significance until its presence was established in live cases killed for examination.

Navel Infection and Arthritis.

The incidence of these conditions varies considerably in different districts, and appears to depend to a large extent on the system of sheep farming in force. Although cases are from time to time seen in hill districts where animals are kept under conditions which approximate to the natural, the number of animals involved is usually not very great, but under more intensive management such as obtains, for example, in this locality, serious outbreaks are much more common. No doubt this is due to close confinement of the animals as, for instance, in pens and lambing yards, being conducive to the propagation and spread of infection. Infection by way of the navel may give rise to a number of conditions. In some cases it results in acute septicæmia involving the death of animals within a few days of birth. In such cases there are no gross lesions. When the condition is subacute there may be evidence of diarrhœa before death and the intestines show a moderate degree of inflammation. In the cases which we have examined streptococci have proved to be the causal agents. Other authors have stated that *B. coli* and Pasteurella organisms may also be responsible.

A very common type of condition resulting from navel infection is that which leads to the formation of suppurative lesions in the liver and also in the lungs. When only two or three such lesions are present they usually develop into abscesses of considerable size and result in local adhesion of the organs to the diaphragm and the walls of the abdomen or chest as the case may be. When more numerous they appear as small yellowish-white foci scattered fairly regularly throughout the tissue of the liver and, to a lesser extent, that of the lungs. An extremely common cause of such lesions in this country is the necrosis bacillus. In France it is reported that the Preisz-Nocard organism is responsible in some cases, and this appears highly probable if we may judge from some observations we have recently made on the methods by which infection with this organism may be transmitted.

The joints are not infrequently involved in animals showing suppurative lesions in the internal organs, but on the other hand there are many cases of joint ill in which these organs show no gross changes. Our experience leads us to believe that the majority of outbreaks of joint ill are due to navel infection, but that occasionally infection may be introduced by other channels.

Some four years ago a report on five outbreaks was published by Glover and Cornell. In three of these there was evidence of streptococcic infection by way of the navel, and this has been true of all other cases which we have examined since that time. In the fourth outbreak described by these authors, also due to streptococci, infection by this channel seemed improbable. Many of the lambs appeared ill when born and developed acute joint lesions within a few hours though the navel appeared to be quite healthy. The mothers of such lambs suffered from metritis for two or three weeks afterwards. The uterus of one animal that died shortly after lambing was found to be diseased. Cultures made from the organ yielded a growth of a streptococcus which was identical with that recovered from the lambs' joints. These facts strongly suggest the possibility of infection having occurred prior to birth.

The last outbreak of this series proved to be of an entirely different type and was found to be due to the bacillus of swine erysipelas. The lambs appeared to be quite healthy until they were two—four weeks old, when they developed arthritis with the result that forty of them died and an equal number were left in an unthrifty condition. The farm was one on which no pigs were kept, and the owner was unaware of any cases of swine erysipelas in the immediate neighbourhood. However, the organism is known to be capable of maintaining its existence in the soil, and it was thought probable that the lambs contracted infection from this source, presumably by ingestion. It was shown that the disease could be reproduced experimentally by feeding. In view of the widespread distribution of swine erysipelas it is, perhaps, a little surprising that further cases of this nature have not as yet been encountered.

In this connection it may be of interest to note that Hadleigh Marsh, of Montana, has described a type of arthritis in lambs two or three months old which becomes chronic and does not kill the animals but retards their growth. This authority is of the opinion that although there is no history of losses from umbilical infection yet this chronic arthritis is the result of such infection having taken place at birth and may be prevented by navel disinfection. One such outbreak proved to be due to a specific organism in the form of a slender Gram positive bacillus which has, so far, not been definitely classified, but which shows some of the characteristics of the diphtheroid group. One wonders whether there is any possibility that it may prove to be the swine erysipelas bacillus.

In summing up, it may be said that streptococci are the commonest cause of joint ill in lambs, though other organisms may occasionally be responsible for the condition. In America and France streptococci have also

been found to be most frequently concerned, though in the latter country outbreaks due to the Preisz-Nocard bacillus have been reported.

In dealing with navel infection of all kinds there is no doubt that a few simple hygienic measures thoroughly applied will do much to prevent the occurrence of further cases, but, unfortunately, as the lambing season is a very busy time, it is only rarely that one finds an owner and his shepherd who are able and willing to carry them out in detail. Such measures include the immediate isolation from the remainder of the flock of all affected lambs and their mothers, the disinfection of the existing lambing yard, or for preference the provision of a new one and the dressing of the navels of all lambs as soon as possible after birth. Moussu also recommends that the bedding be well sprayed at least twice a week with an antiseptic solution.

Treatment of affected animals is, as a rule, very unsatisfactory. Antistreptococcic serum is apparently of no value, and although one or two owners have reported favourably on the use of vaccine, others have informed us that it has produced no beneficial results. Should outbreaks of arthritis due to the swine erysipelas bacillus be met with in future, there is reason to hope that they could be controlled by the use of serum.

Contagious Pustular Dermatitis or Stomatitis.

This condition occurs in many parts of the world. While its existence has been recognised for a very long time its real nature was not determined until comparatively recent years. The disease is usually seen in lambs up to one year of age though older sheep may be affected. It may occur within a few weeks of birth, but is perhaps most frequently seen in animals which have reached a stage when they are being fattened for the butcher. The condition is most common during the spring and summer months. Glover has recently been engaged in an investigation of the subject, and has published a report of which these remarks are a summary. The lesions are usually localised to the nostrils and the external aspect of the lips, particularly the commissures. The eruptions, which commence as discrete vesicles or pustules surrounded by a marked inflammatory zone, are succeeded by small erosions which tend to spread in a circular manner. These ulcers, which occasionally exhibit a tendency to persistent hæmorrhage, are covered by an abundant exudate which later becomes dessicated to form thick yellowish-black crusts. In most cases these scabs are shed and healing occurs, but in some outbreaks there is a continued proliferation of the epithelium leading to the formation of a dense wart-like out-growth having a superficial resemblance to a papilloma. These growths, which may attain the size of a filbert nut, persist for several weeks, but are eventually resorbed. The lesions show little or no tendency to extend to the mucous membrane of the buccal cavity, but they may spread to the tissues immediately adjacent to the lips. Occasionally, the disease assumes a more serious character and spreads to other parts of the body, such as the coronet, the under surface of the tail, the thighs and the axillæ. In these positions the lesions, which at the outset are small pustules, rapidly increase in size to form large fungoid masses which bleed very readily.

The disease is, without doubt, spread by means of the crusts, which are highly infective, and once the malady has made its appearance in a flock, few of the lambs are likely to escape.

The disease is due to a filterable virus. Under experimental conditions the lesions produced show a marked resemblance to those of the vaccinia-variola group in that they pass through the stages of papule, vesicle, pustule and scab. In natural cases the lesions are apt to pass unnoticed until they have reached the later stages, and are usually seen in the form of shallow ulcers covered by a purulent exudate or as papillomatous outgrowths. The virus is very resistant to dessication, and in the dried state remains fully virulent for a long period, which explains how infection persists on premises from one season to another.

It can be shown experimentally that an animal which has recovered from a natural attack of the disease possesses a high degree of immunity which lasts for a considerable time. An equally solid immunity can be conferred on animals by a simple process of vaccination which is carried out by lightly scarifying the inside of the thigh and rubbing in a suspension of the virus. This is followed by the development of a benign local lesion which shows no tendency to spread. Complete immunity is established in fifteen days, and the lesions are completely healed in about three weeks.

This method of immunisation might, with advantage, be used in districts where the disease is prevalent.

Pulpy Kidney Disease of Lambs.

The condition to which this name has been applied was first seen by us shortly after the Department was established in Cambridge. It appears to be most common in this country in lambs from twelve to fifteen months old which are receiving a generous allowance of artificial food so as to fatten them for the butcher. In the majority of cases the ration has contained a fairly high proportion of linseed or cotton-seed cake. Cases may also occur among older animals which are being fattened, notably among tegs penned on roots and given concentrated food in addition. A very similar condition has, for many years, caused heavy losses in New Zealand and Western Australia where it chiefly affects lambs about the age of three or four weeks. The animals affected are usually those that are in the best condition. In New Zealand, according to Gill, single lambs are far more often affected than are twins. Death takes place very suddenly, and as a rule the animals are found dead and there is no opportunity of observing symptoms. On the only occasion on which we have seen lambs in the last stages of the disease the animals were unable to stand, were breathing heavily, and showed evidence of pain. On *post-mortem* examination the condition of the kidneys is very striking. They feel soft to the touch and have a blotchy hæmorrhagic appearance. When cut, the substance of the cortex is found to be semi-fluid, and in extreme cases has the consistence of white of egg. It was at first thought that this might be due to *post-mortem* changes, which occur very rapidly in the sheep, but this view was found to be incorrect, as when the animals whose symptoms have been noted above were killed for

examination their kidneys showed similar alterations. The liver is usually hyperæmic and petechial hæmorrhages may be present on the serous membranes and heart muscle. Histological examination of the kidney shows general congestion of the organ. The whole of the cortical substance, with the exception of a few scattered tubules, is completely necrosed, and there is no evidence of reaction. The medullary portion is not affected to any extent apart from congestion of the blood vessels.

Death is evidently due to complete cessation of kidney function as a result of sudden and almost total destruction of the cortical substance. How this is brought about is at present unknown, but it appears that it is most likely due to an acute intoxication of some kind.

It has been suggested that the disease is due to excessive protein consumption, but this view is not borne out by the experiments made by Stewart, who fed sheep for long periods on diets containing very large amounts of this constituent without producing any noteworthy alterations of the kidneys. The possibility of plant poisoning has also been considered, but judging from the conditions under which the disease has been found to occur in this country we think that it may safely be excluded. Lastly, it should be noted that there is no evidence of bacterial infection.

When cases occur, the only advice which can at present be given is to reduce the amount of concentrated food as far as possible. In several cases where this has been adopted losses have quickly ceased.

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Discussion.

The President (Major T. G. Heatley): I feel, and I am sure that you all feel, exceedingly grateful to Capt. Bosworth for preparing this paper for us: a paper which is absolutely brimful of information, in this way—it shows that the people at Cambridge are tackling, or have tackled, many of the problems with which we meet in the field, and are at a loss to account for.

I hope that those who have observations to make on this most interesting and valuable paper will make them without delay, in order that we may reap the benefit of Capt. Bosworth's reply.

Capt. W. Shipley: I should like, first of all, to say how very grateful we are to Capt. Bosworth for giving us such a very interesting paper and one which is, as you say, sir, brim full of important information and discoveries. The paper shows, amongst other things, what enormous strides the Institute of Animal Pathology at Cambridge has made towards the elucidation of diseases which we know nothing at all about, and it shows how tremendously hard they must have worked, and that the first fruits of their labours are proving very beneficial to us from a practical point of view. (Applause.)

I have no doubt that considerations of time have led Capt. Bosworth purposely to leave out reference to one portion of the investigation which to us would be of particular interest, and that is the matter of treatment, though, having once discovered the cause, the treatment, I take it, comes automatically and simply. In reality we rely on places like the Institute of Animal Pathology to diagnose our cases for us; therefore the causation of these diseases does not concern us so much as their treatment. Perhaps in Capt. Bosworth's reply he will enlighten us a little in regard to treatment. While on that subject, there is one thing in his paper which I may have misunderstood, when he said, in speaking of abortion in ewes, that a certain inoculation of killed culture into the sheep killed it in a few hours. That is something I did not understand and probably Capt. Bosworth will explain, because it seems to me that if one knows the causal organism one can treat the condition with the dead organism with beneficial results; but if, in this instance, it killed the animal in a few hours, it is a method by which we should not get much further forward.

Another point the essayist has raised in connection with ewe abortion is that frequently the sheep will carry her lamb the full time, but the lamb will be born dead. I desire to ask if that is a direct sequel to infection with the abortion organism, or is it a coincidence that she carried the fœtus the full time and then it just happened that the lamb was born dead?

I also understood him to say that it was very rare to get any recurrence in a particular flock without fresh animals being brought in. Does that mean that recovery from an attack produces a life-long immunity?

To pass on to various other ailments with which Capt. Bosworth has dealt, amongst these was what he had termed "pregnancy disease."

The essayist has said that a peculiar feature of that disease is that it is more prevalent in cold weather.

[Capt. Bosworth: No, Sir; I said it was very prevalent during the early months of this year; the weather happened to be very cold then.]

I made a note of that point, because it occurred to me that, inasmuch as foot-and-mouth disease is more prevalent in cold weather, if that applied to pregnancy disease it might be that the virus thrived under cold conditions. The essayist has mentioned when speaking of this so-called pregnancy disease, that the generalisation might be made that in those diseases of which the causal organism has not been discovered, there occurred a loss of vision, but that appears to be just an ordinary symptom of a great variety of disorders. For example, one sees loss of vision, or interference with vision, arising from metritis; in fact, inflammation of any viscus is rather apt to produce a reflex action, by way of the central nervous system, which promotes disturbance of vision. It is also noted, of course, in any disease with congestion of the liver, and I suppose it is a question whether the liver lesions are the cause of the blindness or a symptom of the complaint; I beg to suggest that the liver lesions are secondary, and that the whole cause of the trouble is probably some auto-intoxication, by which you get liver infection as a secondary item.

I am not a sheep man, nor do I live in a sheep district, but one of the most interesting complaints with which I meet amongst the sheep we have is the so-called black garget, and I should like Capt. Bosworth, if he can spare the time, to enlighten us upon it a little more, as once

the condition becomes established in a flock it causes considerable loss, and I think the ordinary practitioner is more or less at a loss as to its treatment. I have found, however, that if, by careful observation of a flock in which an outbreak of black garget has previously occurred, one can spot that a sheep is affected and she is isolated, so that infective material is not broadcast, then the complaint dies out.

The essayist made some reference to braxy, but there again I suppose he had a subject which was altogether too large to deal with at any length when he had embraced so much already.

Capt. Bosworth was also talking of navel-ill, and the ordinary streptococcic infection. Does he say that navel-ill, or joint-ill, in lambs is due entirely to the organisms producing the ordinary navel-ill, or joint-ill, that we meet in the other animals, or does he not think that probably an ordinary mixed streptococcic and staphylococcic infection is responsible? If the latter, would not treatment by way of an ordinary mixed injection product, of sheep origin, prove quite satisfactory? I may be quite wrong in what I am leading up to, but it is a fact that we are concerned more with the treatment of these conditions than with their cause.

He made reference to swine erysipelas. That reference, I may say, is to me one of the most interesting remarks that he made, in this way: that although I am not a pathologist or a bacteriologist, I take a great interest in those aspects of the veterinarian's work, and where possible I make smears and stains, etc., and I have in various instances found lesions, exactly similar to those which we regard as those of swine erysipelas, in other animals—more notably in calves, from which I have been able to stain, by Gram's method, a bacillus which, to my mind, is exactly similar to the swine erysipelas organism. Considering the prevalence of swine erysipelas in these days, I can see no reason why the organism of swine erysipelas should not be responsible for more or less similar conditions in other animals.

Of course far and away the most common of the diseases with which we meet, amongst those you have mentioned, is contagious stomatitis, and there, as you say, we have a papular eruption chiefly affecting the outside of the lips, but I have found that almost invariably it is associated with a similar papular eruption of the cow's udder. To my mind it is quite doubtful as to whether the disease originates as an infection from the ewes or whether it is an infection from the lamb. I am inclined to think that it is really an infection from the ewe, but in view of the fact that you say (and I agree with you) that you get skin lesions more or less localised under the tail, in the axilla and on the thighs—wherever, in fact, the wool is wanting, or small in amount—in regions where the lamb can infect itself by licking or biting, I agree with you when you say that the condition is one closely allied to vaccinia variola. Here is where you make mention, for the first time, of treatment by vaccination, and I think you state that by treatment with vaccine the lesions will be healed in three weeks after vaccination, except in those instances where we get a papillomatous growth. I have no doubt that vaccination is the proper method of treatment, but I think that the lesions will heal in three weeks just the same with ordinary treatment.

With regard to kidney disease, of which you spoke and with which I have met, I may say that in one instance I took a smear from the mucus content of the pelvis of the kidney and I found what I thought to be embryo worms, and as worms are so often the cause of serious trouble amongst sheep it has dawned on me that it is quite possible that the kidney lesions are due, in some instances at least, to the presence of the embryo worms or similar worms, and that the fatal symptoms are due to a form of uræmia.

Mr. W. Waters: I should like to thank Capt. Bosworth for his most excellent paper, especially as I have, in the past few years, often had to consult him in connection with several of the diseases which he has so ably described to-day.

I should like to ask him, in connection with abortion in sheep, if it is possible for the infection to be passed from sheep to cows or from cows to sheep. I am specially interested in this, because two or three years ago Capt. Bosworth proved for me a case of contagious abortion amongst a flock of sheep and this year the farmer turned off over a dozen heifers on the same pastures, upon which heifers had never previously grazed, and those heifers have now got contagious abortion. It may, of course, be a pure coincidence, but the matter is of such importance that I should like to have Capt. Bosworth's opinion.

As far as fatty infiltration of the liver is concerned, I generally get one outbreak of this every year, and I nearly always find that the disease occurs after the ewes have been fed artificially a month or so before they have been due to lamb. They are heavily fed and get very fat, and when they die one invariably finds these fatty livers.

As to a cure, I find that if, as soon as the presence of the disease is demonstrated, you tell the man to walk the sheep four or five miles a day, and take them off the artificial food, the disease will vanish almost at once.

With reference to black garget, this seems to be a disease more or less confined to certain farms. I get one or two cases on one farm and none anywhere else. That client invariably has the sheep treated, and if anybody wants to cure black garget I may say that—if it is very quickly done—by injecting the udder, all round the base, with perchloride of mercury 1—100, quite a number of sheep will live, after the affected quarter has sloughed away.

I should like Capt. Bosworth to give us a few more particulars about the outbreaks of joint-ill which were associated with the presence of the bacillus of swine erysipelas. That is a very interesting thing, and I should like to know whether it is possible to diagnose in the field—whether it is possible for us to ascertain if the cases of joint-ill or navel-ill which we see are due to the organism of swine erysipelas or to some other infection, because, if it is, we could inoculate the lambs accordingly.

I should like just to comment on pulpy kidney. As Capt. Bosworth says, in some cases the extent of the disease process is extraordinary and no one would think that an animal could live under such conditions.

In the first case I ever saw I found two pulpy kidneys, in a lamb: one was absolutely liquid, and I sent the other up to Sir John M'Fadyean, telling him that the lamb had been dead only a few hours according to the shepherd. Sir John replied that the shepherd must have misinformed me, because no lamb could have lived more than a few hours with kidneys in such a condition, and that the condition I found must have been putrefaction after death. Fortunately, I was able to send him up, in a few days, one that was just warm when seen by me, which proved that lambs had this condition before death and not after.

In my opinion the condition of pulpy kidney is due, in 75 per cent. of cases, to the same worms which cause parasitic gastritis; therefore I always treat the lambs for worms. You cannot cure the pulpy kidney, but if you do away with the probable cause the disease itself will soon diminish.

Captain P. R. Turner: I should like to add my quota of thanks to Captain Bosworth, not only for the information and assistance he has given me personally, but for that he has given to the meeting.

I called Professor Buxton and Captain Bosworth in to a flock of ewes that were badly troubled with abortion and, as Captain Bosworth has said, so often we are called in when the disease has got such a hold that we have no time to get a vaccine made and serve any useful purpose.

They expressed the opinion that if the owner hung on to those ewes he would be safe, and that proved to be the fact, for there never were any aborted lambs afterwards, in the true sense of the term.

The President (Major T. G. Heatley): I should like again to thank Capt. Bosworth for coming and for giving us so informative a paper.

His first subject was abortion. Of course that is a serious thing in a flock, for the losses are occasionally very

great. One thing I have noticed about flocks kept on light, poor lands is that when a man keeps his own ewe lambs he does not get so much abortion as he does when he makes his flock up from bought shearlings or lambs. It appears to me as if the sheep on a man's own place have got a natural immunity, because I have noticed that the bought sheep are the ones that most usually abort. I have also noticed that in a bad outbreak it is quite usual for the shepherd to blame the farmer for growing his turnips wth a lot of superphospate or other artificial manures. Then again, you often find abortion taking place where the ewes happen to be folded on a piece of land on which there has been a muck hill, where you get a rank growth of turnip or anything like that. A possible explanation of that might be that, if the ewes have got the disease, their being folded on such a piece of land so affects their condition that the organism of contagious abortion is given the chance to get the upper hand and the ewe aborts.

I personally see a few cases of fatty liver every year. They occur in sheep of any age, but generally a few days after they have delivered their lambs. It was taught by Prof. M'Fadyean, a little time ago, that those cases were due to overfeeding with artificial food just before lambing, but I have seen them occur in ewes that had had no artificial food at all. One of the most important factors in preventing this trouble in a breeding flock is a good outrun, permitting plenty of exercise.

Mastitis is generally spoken of as occurring most when the wind is easterly, and the ground is wet and muddy, and it is the usual thing in this country for the shepherd to scarify the udder and rub in salt. Probably the adverse weather conditions lower the ewe's power of resistance.

Some remark was made about diseases incidental to lambing. We get a condition called "straining" at lambing time, which is most infectious, though I do not know the responsible organism, and the only thing I have found that is any good at all is to shut the yard right up and open up another lambing fold some distance away, and isolate infected ewes and not let the general shepherd handle them. Also, in connection with white scour in lambs, again the only thing of value is to shut up that lambing yard and make another one somewhere else.

Nearly all these diseases that you get in ewes and lambs at lambing time appear at about the time when they are two-thirds way through lambing. I endeavour to explain to the owners that ewes are not used to being confined in close quarters, and that at lambing time they are brought in and confined during the most critical period of their life and exposed to conditions to which they are quite unused, *i.e.*, they are confined in a yard which must be infected with bacterial matter.

On one farm, where for three years cases from white scour in lambs had been disastrous, when the lambing yard was discarded, and single temporary shelters of straw hurdles were used, white scour did not occur.

I remember once reporting a case of suspected anthrax which I now think must have been a *Vibrion septique* infection.

Capt. Bosworth mentioned tetanus. I have seen two really bad outbreaks, equally in the ewe and ram lambs where, after docking and castration, in one case they were put direct on to white turnips, and in the other case on to a piece of autumn sown rye grass. In both these cases the wounds would come in direct contact with the soil, and in neither case had the docking been done by the actual cautery, which I think is undoubtedly the best method.

Capt. Shipley mentioned about sore mouths, and that is occasionally a most serious condition amongst hoggets, for they lose condition very quickly. It is gratifying to have had Mr. Glover's investigations put before us.

I saw a bit of pulpy kidney and some years ago forwarded some carcases to Sir John M'Fadyean, pointing out that the condition was present in the lambs that were killed. Sir John M'Fadyean said the condition was probably due to some irritant circulating in the blood and producing irritation of the kidney; the irritant probably being mildew from the swedes on which they were folded, acting as an irritant on the kidneys. I have also seen the condition associated with yellow livers, but I am of opinion that parasitic infestation of the fourth stomach may be one of the causes of the condition. These worms in the stomach must be passing a lot of excrement that must be absorbed and that may set up this condition in both the kidney and the liver.

Again, I should like to say that this paper of Capt. Bosworth's is tremendously interesting to us here to-day, but it will be as interesting, when it appears in the *Veterinary Record*, to other people. It is a paper which will help us to explain to flock owners the difficulty of prescribing treatment for many of these cases. I value this paper very much and I know that it will be of the greatest value to other people who are interested in sheep work. Moreover, it shows us that with sheep the main point to aim at is prevention, as the treatment of actually infected sheep is not very satisfactory.

Capt. J. F. THURSTON: I should like to add my quota of thanks to Capt. Bosworth for his excellent paper on the various diseases of the sheep. I half expected some reference to lamb dysentery, for I sent Capt. Bosworth some lambs in the Spring of last year, at which time, I believe, the disease had not made great inroads into the Eastern Counties. I regret to say, however, that it has now made big inroads into the flocks and pastures of Norfolk and Suffolk. A good many stock owners have followed the advice from the Institute at Cambridge and have taken to the inoculation of the newly-born lamb. I believe several farmers are being pestered with some "quack" remedy in the form of a powder, and one flock owner informs me that, although he considers the inoculation expensive, the cost of the powder comes to about the same. I should like to know if there is any other source of supply of the serum for inoculation than Burroughs, Wellcome & Co., and, as the disease is assuming such large proportions, would it be likely to become cheaper than eighteen pence a dose?

The PRESIDENT: I think this paper is so valuable because it shows, when we get outbreaks of disease of sheep, how very little you can do: it heartens us a little bit to know that we cannot do very much more than we are doing, according to our knowledge at the present time, and also it is another indication of what has been done at Cambridge and elsewhere, because nearly all the things they have been looking into are the things that trouble us most.

I should have liked to hear Capt. Bosworth say a little more about parasitic trouble in sheep. Many of the materials used as parasiticides in lambs do not seem to be of much use experimentally. The only thing I can say is that in several of the flocks I have to do with I treat the flock with copper sulphate solution once a month through the year, and within two months of lambing, and the lambs after weaning, and the results seem to warrant the treatment.

I will now call on Capt. Bosworth to reply to the discussion.

THE REPLY.

Mr. BOSWORTH: In reply to Capt. Shipley, I am afraid it is impossible to give much information with regard to the treatment of the conditions we have had under discussion, as the majority of them do not lend themselves readily to curative measures. In dealing with sheep diseases, perhaps even more than in the case of diseases of other animals, prevention is far more valuable than treatment, and is often the only procedure which can be attempted in practice. The methods of prevention in so far as they are known have been outlined. Capt. Shipley seems to have slightly misunderstood the reference to the safety of abortion vaccine. It has been found that certain batches of vaccine may be unsafe: the actual value of the vaccine as a preventive we have not yet been able to ascertain, because whenever we have vaccinated large numbers of animals and left controls no cases of disease have occurred and so we have not been able to draw any conclusions. The organism, however, appears to be

a good antigen as shewn by the apparent readiness with which immunity is acquired as the result of an actual attack of the disease. The safety of all batches of vaccine has been tested before use, and that is how we know that under certain conditions—which we have not been able to elucidate—this organism may be toxic in killed culture. This is not a unique experience in connection with organisms of the paratyphoid group.

In the outbreak in which lambs were born dead, the cause of death was infection with the paratyphoid organism. It happend that there were no premature births in that particular outbreak, and thus it differed from the usual course of events.

The loss of vision in pregnancy disease is, as Capt. Shipley says, quite possibly due to the abnormal condition of the liver and that is the opinion of Sir John M'Fadyean. I would point out that there is no evidence of any infection of the uterus in this disease. The lambs (usually nearly full term) appear to be quite healthy.

I am glad to hear that, in Capt. Shipley's experience, the isolation of animals affected with black garget is a valuable preventive measure: it is one which might with advantage be adopted by shepherds far more frequently than it is.

Navel-ill in sheep is a very similar condition to navel-ill in other animals. The organisms that cause the trouble in lambs are chiefly streptococci, and that is also the case in foals. Vaccine is not very effective as a rule in the treatment of lambs suffering from this condition; as a matter of fact, it is usually not worth while treating such animals but, as mentioned in the paper, this method has been tried on a number of occasions and has in most cases proved unsatisfactory.

The possibility of the infection of other animals with the swine erysipelas organism is one which we have always kept in mind. Glover and Cornell found the organism in cases of arthritis in lambs, and I believe they mentioned in their article that cases of infection in fowls have been reported, and also a case in a cow. If Capt. Shipley encounters further cases of the type that he has described, in cows, and will send us material, we will endeavour to ascertain whether his Gram positive organism is that of swine erysipelas or not.

There is reason to believe that the form of stomatitis that Mr. Glover has described in lambs is closely related to malignant aphtha of ewes and lambs, in which lesions occur on the udder and teats of ewes in addition to those on the mouths of lambs. It was in connection with the lesions following vaccination that healing was stated to occur in three weeks: it is not suggested that this vaccine should be used as a curative, but it is a valuable preventive and the form of reaction which results is strictly localised and quite benign. We feel that where trouble is regularly experienced it would be well worth a trial.

If Capt. Shipley should meet with any more embryo worms in pulpy kidneys of lambs, perhaps he would be good enough to send us some for identification. We have never detected any evidence of this kind in cases of the disease which we have ourselves examined.

Mr. Waters has raised the question of the possibility of the paratyphoid organism of sheep abortion being transmitted to cattle, and *vice versa*. We have no evidence that this actually occurs and have not tried it experimentally, but there is nothing to show that it is a common cause of cow abortion and I would suggest that if Mr. Waters cares to have the matter cleared up in the particular case he quoted, it could be done by means of a blood test.

His reference to the good effects which result from exercising ewes in cases in which fatty infiltration of the liver has appeared in a flock is in accordance with the experience of American investigators.

His treatment of black garget seems somewhat drastic, but appears to be justified by the results obtained.

There is no method except microscopical examination by which one could tell that an outbreak of joint-ill is due to a particular organism such as that of swine erysipelas. In the outbreak for which this organism was found to be responsible the lesions did not appear until the animals were from two to four weeks old, whereas the ordinary form of joint-ill in lambs occurs within the first week of life.

We have not seen cases of ewes dying of fatty infiltration of the liver after lambing, as has been Major Heatley's experience, but on the contrary have found that losses from this cause tend to cease after parturition, and that, I think, is the general view of those who have written on this subject. Whether the condition to which the President refers is the same as that ordinarily known as pregnancy disease I cannot say.

Feeding Stuff Definitions.*

Below we give a number of definitions of feeding materials recently approved by the U.S. Association of Feed Control Officials. For comparative purposes, these are shown with their English equivalents, as defined in the Fertilisers and Feeding Stuffs Act, 1926. Unless it is otherwise stated, the Association's definition appears first.

Barley Meal and other Meals.

All meals are defined as being "the clean, sound ground product of the entire grain, cereal or seed, which it purports to represent." This hardly varies from the English interpretation of barley meal as "the meal obtained by grinding commercially pure barley, as grown."

Other meals which, therefore, show no change in definition, include bean meal, clover meal and dari meal. According to the Association, however, there is in the United States a mixed barley feed (meal) which is the entire product obtained by grinding country-run barley containing not less than 75 per cent. pure barley and not more than 25 per cent. of other grains, weed seeds or foreign material; provided, that no portion of this 25 per cent. of other grains, weed seeds, or foreign material shall be deliberately added. The ingredients must be stated as barley, other grains, weed seeds, and foreign material.

Cottonseed Cake and Meal.

The cake is "the product obtained after the extraction of part of the oil by crushing, cooking, and hydraulic pressure, or by crushing, heating and the use of solvents from seed which has been screened and cleaned of weed seeds and other foreign materials by the most improved commercial process."

For the meal, however, a rather more lengthy definition is given. It is described as "a product of cottonseed only, composed principally of the kernel with such portion of the shell as is necessary in the manufacture of oil, provided that nothing shall be recognised as cottonseed meal that does not conform to the foregoing definition and that does not contain, at least, 36 per cent. of protein."

Cottonseed meal shall be graded and classed as follows:—

1. Cottonseed meal (prime quality) must be finely ground, not necessarily bolted, of sweet odour, reasonably bright in colour, yellowish, not brown or reddish, free from excessive lint, and shall not contain less than 36 per cent. of protein.
   Cottonseed meal with 36 per cent. of protein shall be termed "36 per cent. protein cottonseed meal, prime quality."
   Higher grades are similarly designated as "43 per cent. protein cottonseed meal, prime quality."
2. Cottonseed meal (off quality) is meal not fulfilling the above requirements as to colour, odour, and texture, and is graded as "36 per cent. protein cottonseed meal, off quality." Higher grades are similarly designated.

The definition for undecorticated products in this country is "the residue resulting from the removal of oil from commercially pure cotton seed, not decorticated."

The decorticated or partly decorticated products are "the residues resulting from the removal of oil from commercially pure cottonseed from which the vortex, in whole or part, has been removed."

* Reprinted from *The Fertiliser, Feeding Stuffs and Farm Supplies Journal*, London, Vol. XIV. No. 21, Oct. 16, 1929.

Brewers' Dried Grains.

Such products "are the properly dried residue from cereals obtained in the manufacture of beer," which compares with the version used in this country of "the article produced by drying the residue of malted and unmalted cereals used in brewing, to which no other matter has been added."

Distillers' Dried Grains.

The American interpretation of this heading is "the dried residue of cereals; obtained in the manufacture of alcohol and distilled liquors. The product shall bear the designation indicating the cereal predominating" whilst, in this country, they are "the article produced by drying the residues from distillery mash tuns to which no other matter has been added."

Dried Beet Pulp.

This feeding stuff is defined by the Association as "the dried residue from sugar beets which have been cleaned and freed from crowns, leaves and sand and which has been extracted in the process of manufacturing sugar." By the Act in operation here, it is "the article produced in the manufacture of sugar from sugar beet."

Bone Meal.

Raw bone meal is "the dried, ground, product suitable for animal feeding, obtained by cooking bones in water at atmospheric pressure. It must contain not less than 23 per cent. of protein," the product in this country is defined as "the product obtained by grinding commercially pure, steamed bone."

The Association of Feed Control Officials also have tentative definitions for steamed bone meal and special steamed bone meal, the latter of which we describe as "feeding bone flour."

The former is "the dried ground product, suitable for animal feeding, obtained by cooking bones with steam under pressure," while the latter is termed "the dried, ground product suitable for animal feeding obtained by cooking dried bones after the removal of grease and meat fibre with steam under pressure in the process of obtaining gelatine or glue."

Dried Blood.

This is "ground, dried blood" in America, and here it is "blood which has been dried and to which no other matter has been added."

Meat and Meat and Bone Meals.

Meat scraps, as defined by the Association, are "dried, ground residues from animal tissues exclusive of hoof, horn, manure, and stomach contents, except in such cases as might occur in good factory practice." The definition of meat meal in the Act before-mentioned is "a product (containing not more than 4 per cent. of salt) of drying and grinding flesh and flesh fibre (including whale meat), to which no other matter has been added."

In America, if meat scrap should contain more than 10 per cent. of phosphoric acid, it is the "meat-and-bone scrap," of which our definition is "the product (containing not more than 4 per cent. of salt) of grinding bone, flesh and flesh fibre (including whale meat), to which no other matter has been added."

Fish Meal.

This is designated as being "the clean, undecomposed residue from the manufacture of glue and other fish products from non-oily fish," while the definition used in this country is "a product obtained by drying and grinding or otherwise treating waste of fish, to which no other matter has been added."

Linseed Cake and Meal.

In the Fertilisers and Feeding Stuffs Act, 1926, it is stated that linseed cake is "the residue resulting from the removal of oil from commercially pure linseed" and the meal is "the meal obtained by grinding or crushing commercially pure linseed."

The respective definitions for these feeding stuffs, as approved by the Association of Feed Control Officials, are "the oil-cake or meal made from flax-seed, provided that the final product shall contain less than 6 per cent. weed seeds and other foreign material; and provided, further, that no portion of the stated 6 per cent. of weed seeds and foreign materials shall be deliberately added."

Where the term "oil-cake" is used alone in the U.S., with no prefixes, it is understood to designate linseed cake.

Maize Meal.

As defined by the American Bureau of Chemistry, Department of Agriculture, maize meal is "made from sound maize grain and contains not more than 14 per cent. of moisture, not less than 1·12 per cent. of nitrogen, and not more than 1·6 per cent. of ash." Maize meal in this country is taken to be "the meal obtained by grinding commercially pure maize or Indian corn, as grown."

Rice Bran.

This feeding stuff is defined as "the pericarp or bran layer of the rice, with only such quantity of hull fragments as is unavoidable in the regular milling of rice" which compares with our definition of "the by-product produced in milling shelled rice, to which no other matter has been added."

Wheat Offals.

In the English Act these products are defined under the heading of wheat offals (millers' offals) and are described as "a product of wheat separated in the process of milling and containing not more than 4 per cent. of vegetable substances, other than wheat, extracted from wheat in the process of cleaning by the maker of the offals in the production of flour."

The American Association of Feed Control Officials give separate definitions of standard middlings, wheat bran, and white shorts or white middlings. Standard middlings should "consist mostly of fine particles of bran, germ, and a very little of the fibrous offal obtained from the 'tail of the mill.' This product must be obtained in the usual commercial process of milling, and shall not contain more than 9·5 per cent. of crude fibre."

Wheat bran is "the coarse outer covering of the wheat kernel as separated from cleaned and scoured wheat in the usual process of commercial milling" and white shorts or white middlings "consist of a small portion of the fine bran particles and the germ and a large portion of the fibrous offal obtained from the 'tail of the mill.' This product must be obtained in the usual process of flour milling, and shall not contain more than 3·5 per cent. of 'crude fibre.'"

National Mark All-English Veterinary Malt Extract.

"The value of malt and oil as a means of supplying the very necessary accessory food factors to young growing stock or valuable pedigree or racing stock which are suffering from avitaminosis or lack of tone has long been known and recognised. In recent years, however, breeders and feeders have begun to distrust its use owing to the practice alleged to be followed by some makers of putting up for veterinary purposes a low grade of malt extract and of using an oil containing no trace of vitamins whatsoever.

"This position has now been remedied by the National Mark Scheme recently issued by the Ministry of Agriculture, which requires a definite standard of quality for All-English Veterinary Malt Extract, either with or without cod liver oil, sold under the National Mark," says the Ministry, in a recently-issued communication to the Press.

"The various factors in the extract are defined. Diastase, so valuable as a digestive, must be present to the extent of at least 15 Lintner. The minimum amount of protein is placed at 5 per cent. and the specific gravity at 1.4. It is also laid down that the oil used in conjunction with the extract shall be a good palatable cod liver oil from which the vitamins have not been removed, and the amount of oil is fixed at 15 per cent. by volume of the total.

"It is hoped, by prescribing a standard in this way, that the veterinary profession and livestock interests will regain their confidence in this valuable accessory food, and will in future specify and buy National Mark All-English Veterinary Malt Extracts, either with or without cod liver oil."

[The list of authorised packers of this product in the National Mark Scheme includes our advertisers, The British Drug Houses, Ltd., 16/32 Graham Road, City Road, N.1.—Ed.]

From The Veterinarian, November, 1829.

Soundness in Horses.

By Mr. W. Percivall.

(Read at the Veterinary Medical Society, October 21, 1829.)

(*Continued from page* 1056.)

Regarding the horse as an animal destined for the service of man, and valuable in the ratio in which he is fitted either by nature or art to perform that service, he may be, in relation to the question before us, considered in two points of view: first, as respects his constitution; and secondly, as respects his action. To be (in the dealer's phrase) "perfectly sound," he must prove both sound in constitution and sound in action. This will form a convenient division of my subject, and enable me, for the present, to confine my observations to

Soundness in Constitution.

What constitutes soundness in constitution? or is, or ought to be meant, by such a warrantry? Before I venture to answer this important question, I conceive it will be prudent to take a view of it in another shape; for it is a question pregnant with matter, and surrounded with difficulties. Would it not, therefore, be advisable for us, first, to inquire what are the causes of unsoundness in constitution?

The first and principal one appears to be disease.

And now another question arises: What do we mean by disease?

Extraordinary as it may seem, to give definitions of health and disease has proved a most perplexing task to philosophers, both natural and medical. Their endless researches after positive characteristics have only gone to show us that these states are, in reality, but relative in their existence; and every day's experience proves to us, that what may turn out to the philosopher to be very difficult to define may, as plain matter of fact, prove to be as well known and understood by the peasant as by himself. From which I must argue that for practical purposes we stand in no need of a definition; and even supposing we did, still we had better continue without one than adopt that which would in any instance lead us astray. To my surprise (as if that which in medicine proved almost impossible to the physician to define, would turn out easy of solution to the lawyer) the law has in a most arbitrary and unjust manner stepped in here: it runs thus—"When the defect arises from a temporary injury capable of being speedily cured, and not interfering with such enjoyment (that of 'present use and convenience'), the horse is not on that account to be held unsound." Taking the word defect to be used synonymously with disease, who, I should like to know, is to determine, in many cases, when disorder "arises from a temporary injury," and when it is "capable of being speedily cured," and when it can or ought to be allowed to "interfere with enjoyment?" All this may appear very plausible in a court of law; but to the medical philosopher it is reasoning of a most loose and indefinite character; and can no more serve as a line of direction to him than a work on anatomy could have enlightened the lawyer who framed such a law.

Respecting the state of recognised or actual disease, there cannot be two opinions: but it is the period at which health is merging into disease, or disease into health—when the latter exists only in its invisible or inactive form—when its seeds or productions alone become discoverable—I say, then it is that we begin to waver in our judgment and differ in our opinion. To those who seek our advice on these points, as common observers and men possessing general information, it must seem strange—perhaps on some occasions even dishonest—that we should thus disagree among ourselves: but if such persons could only learn how imperceptible the transitions are from health to disease, and *vice versa*—how many variations there are from nature which one regards as disease, while another, with apparently equal reason, views them as compatible with health, all surprise and illiberality of sentiment would vanish in the acknowledged intricacy and abstruseness of the subject.

To say that disease consists in "any alteration from a perfect state of health," is no more than shifting the saddle off the back of one horse to place upon that of another: unless we possess clear and distinct notions concerning the healthful state, how are we to detect these "alterations," which are said to form the essence of disease?

(*To be continued.*)

The Horse Throughout the World.

That the horse remains popular throughout the world is shown by figures issued by the National Horse Association. In 1788 the only horses in Australia were one stallion, three mares and a colt. In 1800 they had increased to 203, in 1850 to 159,951, and the latest statistics show a horse population of 2,250,361. Thirty years ago France had 2,917,000 horses and 1,672 motors. With three-quarters of a million motor vehicles in that country to-day, there are, nevertheless, 3,000,000 horses. Germany claims 3,805,000 horses, excluding Army horses. There are some 20 million horses and mules in U.S.A.

Sheep-dipping Uniformity. It was urged by farmers, at a meeting of the Merionethshire Agricultural Committee, that steps should be taken to secure uniform sheep-dipping regulations throughout North Wales. Capt. Broome, Ministry's inspector, said that the present sheep-dipping order could not be revoked, as in Carnarvonshire sheep were dipped a fortnight later than in other counties in North Wales. Thousands of sheep, it was stated, were taken to Carnarvonshire for the winter, with the result that farmers had to dip sheep four times in ten weeks. It was decided to ask Carnarvonshire to agree to uniform regulations.

Intravenous injections of glucose have been shown to exert a remarkably helpful effect on the symptoms of tetanus in horses. The treatment is based upon the neutralising action of glucose on tetanus toxin, demonstrated by Garofeanu and Jobescu (*Compte rendus de la Société de Biologie*, May 24, 1929) who found that 10 milligrams of glucose in a 20 per cent. solution neutralises a minimum lethal dose of tetanic toxin in one hour.

The Veterinary Record.

7th December, 1929.

PRACTICAL LOYALTY.

In setting ourselves to write this week upon the subject of practical loyalty to the Association, which is at once so urgent in its present application and so vital to the future prestige and power of the N.V.M.A., we are keenly aware of the limitations imposed by our position upon our fitness for the task. Important indeed must be the occasion for departure from the principle that none shall demand of another the service or the sacrifice which he himself is not called upon to render, and conscious as we are that such an occasion has now arisen, we must speak in the name of the Association if we are to lay this concern before our readers.

The very first of the twenty-six officially stated objects of the Association embodies the declaration "to support and protect the character, status, interests and honour of the veterinary profession," and the newly-constituted "National" was not long in seeing in the rapid extension of veterinary public health work a clamant field for the application of these first principles. Accordingly, a scale of salaries for whole-time local authority appointments was drawn up. Opportunities for action thereupon have soon presented themselves and, as our Notices Column has shown for some time, it has become necessary to take the logical step of placing a ban upon the acceptance by the *Veterinary Record* of advertisements for such appointments where the salaries offered fail to conform to the Association's scale, and to supplement that action by the insertion of appeals to members to withhold or withdraw applications for such appointments until conforming salaries are granted. Moreover, recognising that a negative policy is not enough, the N.V.M.A. has sought, by every available means, to bring the local authorities concerned to realise the justice of these claims to adequate professional remuneration and recognition.

In striving by these measures to fulfil its self-imposed obligations, the "National" has boldly faced the fact that failure will deal more hardly with it than with those whose interests it seeks to protect, and that any lack of loyal support must prove a more formidable obstacle than opposition from local authorities. But the Association's correspondence leaves us in no doubt as to the great strain which the circumstances of many members place upon them in refraining from making application for posts which may command salaries comparing more than favourably with their present emoluments. It also, in a gratifying number of instances, bears witness to a rigid determination to stand by the Association, even to the extent of withdrawing an application sent in initial ignorance of the ban, and to such stalwarts the "National" and the profession owe a deep debt of gratitude. There may be others, though few, who will think and act differently, regardless of the fact that they are thereby endangering a continuance of the considerable measure of success already achieved. We must remind any such that the failure of even one member to respond to the acid test of practical loyalty to his fellows may result in the loss of a vital position and that, while gaining his end of the moment, he may sacrifice not only his own best interests but much of the invaluable ground so hardly won.

R.A.V.C. Old Comrades' Association.

AN OPEN LETTER.

Dear Old Comrades,

At the last Annual General Meeting of the R.A.V.C. Old Comrades' Association it was the pleasure of those present that I should take over the duties of Chairman of the Executive Committee for the ensuing year. In accepting this office I wish to make a wide appeal through the medium of our veterinary periodicals, and privately, to increase our membership to the fullest extent possible. At present our membership stands at 750. During the period of the war roughly 1,600 officers and 28,000 N.C.O.'s and men were associated with the Corps in the various theatres of operations. It would be difficult to imagine a better or more useful personnel for the particular duty we were called on to perform. Moreover, it was said of us that our units were patterns of discipline and that we were a Service that considerably had paid for itself. Men of high social standing and with a knowledge of animals were not too proud to serve in its ranks, and the spirit of service in a time of national need attracted many to it who from age or physical disability were not fit or capable of service in the fighting line. I am specially desirous that this self-same splendid spirit should be remembered by one and all, and that the associations then so happily made should be continued as long as our time lasts. It will be realised that after the lapse of so many years it is somewhat difficult to get into individual touch with all those who served with the Corps, but it is hoped that present members of the Association, and officers and others who see this appeal, will use every endeavour to induce their old friends, associates and comrades of the past to join. Individual effort and influence is the only way to make our Old Comrades' Association the success it deserves. The annual subscription is half-a-crown and life membership £2 10s. The Hon. Secretary, R.A.V.C. Old Comrades' Association, c/o R.A.V.C. Records, The Common, Woolwich, S.E.18, is open to receive enrolments.

Yours sincerely, JOHN MOORE.

16 Frognal Lane,
Hampstead, N.W.3.
28*th November*, 1929.

CLINICAL AND CASE REPORTS.

Acute Laminitis.

By W. R. Davis, M.R.C.V.S.,
Enfield.

During the past year or so the subject of acute laminitis has been under consideration at several meetings of Divisions of the N.V.M.A. At Ayr it was mentioned in Prof. O'Connor's paper, and a treatment suggested, but none of those who took part in the discussion, nor the author of the paper in his reply, made the slightest reference to what may surely be regarded as a very serious malady.

The diagnosis of the condition in its early stages is not always quite simple ; it may, as stated by Prof. Macqueen at a recent meeting of the Royal Counties Division, be confounded with respiratory affections, etc. For example, a pair of very good cart horses were sent one night with a waggon load of cabbage to Covent Garden—a distance of ten miles. The horses were stabled over-night and on the following morning were hitched to the waggon to deliver the cabbage to the buyer.

The driver noticed that the black gelding seemed a bit stiff, but he carried on and was promptly arrested and taken to Bow Street. After many hours the horse was examined and the driver and owner summoned for working a horse lame from " inflamed sidebone."

The horse arrived home the following night in an ambulance and I found it to be the subject of a dreadful attack of acute laminitis from which it died later. Some discrimination, then, is necessary in the early stages ; later on, of course, diagnosis is simple.

As to the cause, I have never been able to convince myself that those usually enumerated, suggesting traumatic origin, have anything to do with its development (bad shoeing, long standing on shipboard, the " 'ammer, 'ammer on the 'ard 'igh road," etc., etc. I have always thought that, like lymphangitis and mammitis of cows (usually), acute laminitis should be looked on as a general disease arising from conditions in the digestive tract or in the uterus with a cutaneous localisation—the mamma is, after, all a big sebaceous gland, and the keratogenous membrane is only a modified skin. While gorging with most cereals will produce acute laminitis, by far the most potent cause is flour, or ground wheat. I have known a shilling's worth of flour mixed with cold water offered to and refused by a sick horse and then given to a sound one cause an attack of the malady in question to develp a few hours afterwards while the horse was on a journey.

During the Boer war the horses and mules bought in America were assembled at New Orleans for shipment. They were fed on crushed oats and crushed maize and bran. Owing to a very wet harvest there was much spoiled wheat which was ground and sold for cattle food ; unfortunately, some was used to adulterate ground maize and as a result of a supply of this reaching the British horses very frequent cases of acute laminitis resulted—often half a dozen in a morning. In a short time the fraud was detected and with a change of diet came cessation of the trouble.

With regard to the treatment of acute laminitis (and it was really this I had in mind when starting to pen this note) it is remarkable to observe that in all the discussions no mention is made of the therapeutic value of relieving the congestion of the laminæ by taking the pressure from the weight of the animal (a ton sometimes) off its poor feet. (I forgot—someone did gravely suggest putting the patient in slings.)

It is surely obvious that the recumbent position must relieve the suffering of the patient, if it does nothing to modify the pathological process, and that it has the latter effect receives some support from an observation that occurs in the Bradshaw lecture. Dr. Arkwright there states (*Lancet*, Nov. 9th, 1929) :—" and there is reason tc think that in foot-and-mouth disease the amount of virus present is in direct proportion to the serous effusion, for if the foot of a guinea-pig inoculated with foot-and-mouth virus is protected from the pressure of the weight of the body the formation of vesicles may be avoided and at the same time, apparently in consequence, the local production of virus is comparatively small."

The indication first to be observed, then, is to put the horse down. In the absence of the roomy, well-ventilated, loose box (which, if in existence, possibly contains a bunch of calves or sacks of potatoes or corn or is filled with straw and requires time to get ready), the casting must be done in the stall. Put down a deep straw bed going well back. Take two ropes each 30 ft. long ; one is put on the left fore pastern and one on the left hind pastern. The front rope goes under the chest over the back to a man standing in the stall on the left ; the hind rope goes under the belly to a man in the stall on the right. The horse's head is drawn to the right side, the ropes are pulled and the patient slithers down on the left side ; he will struggle doubtless, but if the rope on the fore foot is firmly held it is impossible for the animal to rise. This position must be maintained for at least six hours. A pint or 25 ounces of linseed oil and some acetate of ammonia or aromatic spirits of ammonia is to be given at once and half the quantity in six hours, together with copious enemas. Poultices or cloths wet with hot water may be put on the feet ; the shoes can be removed in six hours, when the horse is first allowed up. The patient should be cast again in two hours if he does not lie down.

In the absence of ropes a couple of halters with a doubled plough line fastened to the shank of each and the webbing put on the pastern, answer. In casting in a box it is well to put a twitch on to steady the head and incline it to the side opposite to that on which the patient is to fall.

Of all the cases that occurred at New Orleans, not one had to be kept back for dropped sole or faulty action, and they were all thrown and not allowed to stand more than two hours at a time for the first few days.

Time is of the essence of the contract, the patient should go down at once—no waiting for a blacksmith or for the fetching of hobbles.

I have found oil to be much the best evacuant in this malady ; aloes, calomel, barium chloride, arecoline, etc., are not nearly so safe or so effectual.

A Case of Equine Tuberculosis.*

By H. D. Jones, M.R.C.V.S., Peckham.

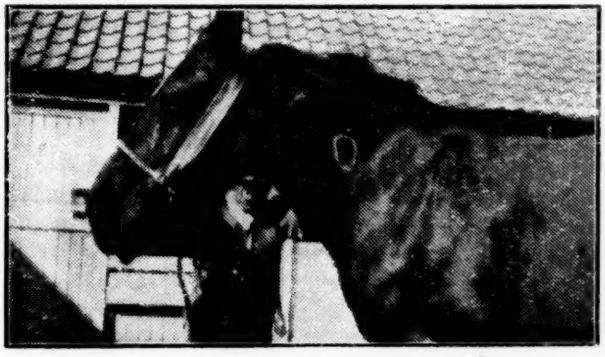
Subject. A six-years'-old black van mare.

History. She was sent to the infirmary with a high temperature, but was in excellent condition and had been purchased about five months previously. Nothing in particular was noticed to account for the pyrexia, which subsided in a few days to 102°, but was inclined to rise at night time. She would stand in a corner of the box with the head depressed and rear fore-leg extended. On further examination there seemed to be a stiffness of the neck: she did not attempt to turn the head, and elevation or depression of the head seemed to cause pain. Tuberculosis was then suspected. It was suggested by Mr. Somer, M.R.C.V.S., that we should test with the intradermal and ophthalmic tuberculin. This was done and a very definite reaction was shewn by both. In my opinion this method of testing is much more reliable than the subcutaneous. I have had cases of tuberculosis in horses that have failed to react to the subcutaneous method.

Post-mortem lesions. The spleen was about twice its normal size and was full of tuberculous lesions; they varied in size, the largest being about that of a cricket ball. Several of the mesenteric glands were slightly enlarged.

Several of the cervical vertebræ shewed well-marked tuberculous enlargements, also the first dorsal and the first rib on the near side, just below the articular surface.

I enclose photo. The swelling on the neck is surrounded by chalk to shew its extent.



Army Veterinary Service.

The War Office announced in the *London Gazette* on December 3rd, the promotion of Colonel W. S. Anthony, C.M.G., half pay list, late R.A.V.C., to Major-General to date December 1st, and his appointment on that date to be Director General, Army Veterinary Services, in succession to Major-General H. P. Sawyer, C.B., D.S.O., late R.A.V.C., who, on completion of his term of appointment, is placed on retired pay.

Colonel Anthony was Deputy Director of Veterinary Services, Aldershot Command up to last August. Served on the North West Frontier from 1897 to 1898 and in the Great War.

* Case presented to the Central Division, N.V.M.A., on 7th Nov., 1929.

DIVISIONAL REPORTS.

Eastern Counties Division, N.V.M.A.

Sheep Diseases Discussed at Ipswich.

A good response was made to the appeal that members should put forth a special effort to attend the Autumn Meeting of this Division, in view of the fact that Captain J. T. Bosworth, of Cambridge, was to deal with matters of considerable importance to country practitioners. The President (Major T. G. Heatley) took the Chair at the Great White Horse Hotel, Ipswich, at 2 p.m., on Thursday, October 31st, 1929, and there were also present Captain D. Blyth, Messrs. R. E. Glover, W. F. Howes, H. J. Loveless, W. F. Loveless, G. T. Matthews, Captain H. Mitton, Messrs. C. C. Nesling, H. L. Roberts, Captain W. Shipley, Mr. J. Smith, Captain J. F. Thurston, Captain P. R. Turner, Captain W. Waters, Captain W. H. Wortley and Colonel W. A. Wood (Hon. Secretary).

The minutes of the previous meeting of the Division, which had received publication in the *Record*, were taken as read and were confirmed and signed.

The Shipley Bowls Cup. The President said that, before they proceeded further with the business, he was sure that they would all be interested to know about the competition they had for the Shipley Bowls Cup. As they were aware, they could not arrange for a tournament that year, but he was able to collect some money at the Norwich meeting, in August, in entrance fees of half-a-crown for a draw to be made for the Cup, the proceeds to go to the Victoria Veterinary Benevolent Fund. He also wrote to those members who were not present at that meeting in August and again had a generous response. As the result of those efforts he was able to send the sum of £7 15s. to the Fund. Having occasion to visit Cambridge, he secured Professor Buxton's assistance and the draw for the Cup was made, the winner being Mr. Godbold, of Stowmarket. The result of the draw was a most fitting one as, even had the tournament been played, there was no one more likely to win the trophy than Mr. Godbold. (Hear, hear.) Accordingly, he had the Cup engraved and had forwarded it to Mr. Godbold, who had sent him an appreciative acknowledgment. The only further remark he wished to make about that was that he was a little disappointed at the lack of prominence given to the matter in the *Record*. It was certainly an interesting news item, but it was tucked away where few people would be likely to see it, and he thought that even some of those present that day might have overlooked it.

Correspondence.

(1) From the Secretary of the Eleventh International Veterinary Congress, inviting the Division to appoint two representatives to attend the Congress, which is to be held in London in August next, and expressing the hope that at least one of the representatives would be a veterinary surgeon holding an official appointment.

The meeting appointed the President with unanimity and, on a ballot, Mr. Matthews as the Division's representatives.

(2) From the Hon. Secretary of the Scottish Branch of the "National," enclosing a copy of the West of Scotland Division Scheme for the Eradication of Bovine Tuberculosis, and inviting an expression of opinion upon it from the Eastern Counties Division.

The meeting unanimously agreed to adopt a suggestion, put forward by the PRESIDENT, that a small Committee of the Division should be appointed to consider the scheme and to report to the February meeting, and the President, the Hon. Secretary and Professor Buxton were appointed to serve.

Post-mortem Specimen. Captain P. R. TURNER exhibited the œsophagus of a dog and a piece of bone with which the œsophagus had been completely perforated on both sides. When the animal was brought to him it was *in extremis*, and the history of the case was that the dog was noticed to gape a lot and to vomit after food—a condition of affairs which had existed for about a week before it was brought to him. The dog was very emaciated, but the point that struck him most was a remarkable degree of soreness, which was most in evidence over the loins. The animal was in a collapsed state, and death soon occurred. He made a *post-mortem*, which disclosed the double-sided perforation of the œsophagus by the piece of bone. As the dog was *in extremis* when brought in, he did not have a fair chance of making a diagnosis.

The PRESIDENT expressed his thanks to Captain Turner for bringing forward so interesting a case. He had no doubt that some of the institutions which had museums would be very glad to have the specimen.

New Member. Mr. B. Claxton, of the Ministry of Agriculture, who is stationed at Ipswich, was nominated for membership by Mr. Matthews, with Captain Shipley as seconder. Captain TURNER then drew attention to the fact that it was for long the custom of the Division to nominate and elect at the same meeting members of the profession who were in the service of the Ministry of Agriculture, and his suggestion that this procedure should be adopted in Mr. Claxton's case was approved by the meeting.

Next Meeting. It was agreed to hold the next meeting of the Division, which is the Annual General Meeting, at Norwich, in February.

The PRESIDENT now called upon Captain J. T. BOSWORTH, B.Sc., M.R.C.V.S., D.V.S.M. to read his paper, entitled "Some Common Ailments of Ewes and Lambs."

The paper was heard by the members with the keenest interest, and yielded a well-sustained discussion. [Both the paper and the report of the discussion are reproduced at the commencement of this issue of the *Record*.—Ed.]

At the conclusion of Captain Bosworth's reply to the discussion, the PRESIDENT said: I move, from the Chair, that we pass a very hearty vote of thanks to Mr. Bosworth for preparing his paper and enlightening us so fully on some of these diseases of sheep. We all realise, as busy practitioners, what it must mean to prepare a paper like that, and I am sure you all appreciate Mr. Bosworth's action in giving up his time in coming here and presenting such an interesting paper, and answering our questions upon it.

The motion, which was seconded by Mr. H. J. LOVELESS, was carried with enthusiasm, Mr. BOSWORTH suitably acknowledging the compliment.

The proceedings terminated with an expression of thanks to Major Heatley for his conduct of the meeting and for his hospitality, of which the members were the recipients at tea.

W. A. WOOD, *Hon. Secretary.*

Central Division, N.V.M.A.

MANY CASES OF INTEREST.

DISCUSSION ON THE WEST OF SCOTLAND DIVISION'S SCHEME FOR THE ERADICATION OF BOVINE TUBERCULOSIS.

The larger part of the agenda paper for the meeting of the Central Division, N.V.M.A., which was held at 10 Red Lion Square, London, on Thursday, November 7th, 1929, was occupied by items of business which the meeting failed to reach in consequence of the sustained discussion which took place on the Scheme for the Eradication of Bovine Tuberculosis, drawn up by the West of Scotland Division and forwarded for the consideration of the meeting by the Scottish Branch.

The President (Professor James Macqueen) occupied the Chair, and there were also present Captain L. S. Balls, Mr. H. Bell, Mr. W. Brown, Captain R. Bryden, Captain G. A. Bushman, Mr. H. E. Bywater, Major T. Dalling, Major G. W. Dunkin, Captain H. S. A. Dunn, Messrs. L. Gabriel, W. S. Gordon, Henry Gray, C. W. Howard, H. D. Jones, Herbert King, H. C. P. King, Major Hamilton Kirk, Captain W. J. Leyshon, Captain G. W. Lucking, Mr. J. W. McIntosh, Captain G. Dunlop Martin, Captain J. H. Mason, Dr. F. C. Minett, Mr. W. Perryman, Mr. J. W. Pritchard, Veterinary-Major Graham Rees-Mogg, Mr. H. L. Roberts, Dr. A. L. Sheather, Miss K. D. Shedlock, Mr. J. Stephens, Captain R. J. Stow, Major F. J. Taylor, Captain W. K. Townson, Dr. R. W. Tuck (Hon. Member), Messrs. F. W. Willett, J. Willett and R. A. Willett, Professor J. G. Wright, Professor G. H. Wooldridge, Lieut.-Col. T. Dunlop Young and Captain J. F. Macdonald (Hon. Secretary), together with the following visitors:—Mr. G. F. Prickett, Captain W. H. Williamson and Dr. W. R. Wooldridge.

The *minutes* of the May and June meetings of the Division, also of the summer meeting at Lavington Park, which had since received publication in the *Record*, were taken as read and were confirmed and signed.

CORRESPONDENCE.

(1) From Lieut.-Col. E. P. Argyle, Captain R. Bennett, Principal F. T. G. Hobday, Major-General Sir John Moore, Messrs. J. H. Poles, E. Lionel Stroud and M. Tailby, apologising for their inability to attend the meeting.

(2) From Captain F. G. Buxton, of Highgate, intimating his willingness to withdraw his resignation, in consequence of the Division's letter to him requesting him to reconsider his decision to resign. Captain Buxton's letter was received with applause.

(3) From the Secretary of the Eleventh International Veterinary Congress to be held in London in August, inviting the Division to appoint two representatives.

Colonel YOUNG proposed that the President and the Hon. Secretary be appointed to represent the Society.

Commission to attend so important a Congress on their behalf, and one which would not be held again for many years, was, said Colonel Young, the greatest honour that Society had to bestow, and it was only fitting that they should, in this manner, pay tribute to the good work done by their President and Hon. Secretary.

Captain DUNLOP MARTIN seconded the proposal, which was carried with acclamation.

MORBID SPECIMENS AND CASES OF INTEREST.

Dr. A. LESLIE SHEATHER said that he had brought a couple of specimens. One was practically just a curiosity: it was an aneurism of the left internal iliac artery of a horse, and he happened upon it by chance at Harrison and Barber's. The animal also had an aneurism of the anterior mesenteric artery, which he shewed. The aneurism from the iliac artery was 5½ inches long and 3 inches in diameter.

In that bottle, proceeded Dr. Sheather, he had the tongue and throat of a cat, which belonged to an acquaintance of his and which had been under veterinary treatment. The case had been diagnosed as one of pharyngitis, which was quite correct, and the cat got steadily worse and died on the seventh day after the illness was first noticed. In consequence of the acquaintance which he had mentioned, the owner asked him to hold a *post-mortem*, and, on opening up the throat, the larynx presented an appearance which, to him, was strongly suggestive of a true diphtheritic condition. One had often heard that cats were said to convey diphtheria to children, and he examined the condition with great care and interest in consequence. But he came to the conclusion that it was not a true diphtheritic condition, in as much as he could not remove the membrane by scraping. He cut sections from a portion of the pharynx and found that it was a case of bacillary necrosis of the mucous membrane; in the depth of the section the tissues were teeming with necrosis bacilli.

Professor WRIGHT said that he had two specimens. The first was the heart from a nine-year-old cross-bred dog, showing marked verrucose endocarditis on the mitral valve. There was also aortic disease on the right side. At the College Clinique they were able to form a fairly accurate diagnosis as to the nature and extent of the disease. On auscultation the first sound was one continuous blowing sound, indicating mitral stenosis and incompetence. The second heart sound was also longer than normal, indicating some lesion of the aortic semilunars.

There was no ascites and no hydrothorax, nor was there any œdema of the dependant parts, such as one would have expected as the result of interference with the *vis a tergo*. Cardiac asthma, however, was marked. The pulse rate at rest was 160 and respirations 40. The dog was destroyed, as the result of emaciation and extreme senility.

The second case was one of chronic interstitial nephritis in the dog. There was nothing new about it; in fact, Mr. Livesey, in a paper presented to the National Veterinary Medical Association, said that he considered that this condition was due to canine distemper. He (Professsor Wright) did not agree. It was a disease of middle and old age in dogs, and he thought it was due more to errors of diet. His object in bringing forward that specimen was to promote discussion on the disease so that they would be enabled to diagnose it during life. He had watched a number of these cases, and the symptoms of chronic interstitial nephritis were those of sub-acute vomition, and they were consequently inclined to treat the case as a gastric one. They could distinguish the two conditions, however, because in chronic interstitial nephritis the vomition bore no relation to the taking of food, while in all cases he examined the urine and if he found it to be albuminous he made a diagnosis of chronic interstitial nephritis—a diagnosis which, in every case, he had been able to verify on *post-mortem* examination.

That particular case was sent to his colleague, Dr. Clough, because it was a case of suspected poisoning; evidently the symptoms were those of acute vomition. Dr. Clough, having decided that there was no poisoning, discussed the case with him and he suggested "having a look at the kidneys." The stomach was perfectly normal and, as for the kidneys, that (indicating the specimen) was what they found.

Mr. JONES recounted a case of tuberculosis in a six-year-old van mare.

[An illustrated account of Mr. Jones' case will be found in our Clinical and Case Reports Section this week.—Ed.]

Major DUNKIN said that he had no *post-mortem* specimen to show, but he would like to describe to them a series of cases which had come to his notice fairly recently and which, through the kindness and courtesy of Mr. J. R. Rider, of Darlington, he was permitted to recount to them that evening.

The condition to which he referred was one which was known in the human subject as diverticulitis, and the case was that of an Iceland pit pony. Mr. Rider had told him that he had had several cases in which the pony commenced to lose condition, with staring coat and capricious appetite, and treatment seemed to be of no avail. Finally, when the animal became emaciated the usual symptoms seen were those of colic—acute abdominal pain—and death ensued. On *post-mortem* examination there was, Mr. Rider told him, in every case a rupture of the small intestine. [Some of the cases were destroyed on account of their debilitated condition, and in these, of course, there were no symptoms of colic, nor was the rupture seen on *post-mortem* examination.] But that was not the most extraordinary part of the condition; the amazing thing was the extraordinary thickness of that part of the bowel. In those specimens which he had—and which he proposed to bring to the next meeting—the thickness of the small intestine was not less than half an inch; it was, in fact, like an enormously-thickened gas pipe. When examination of the mucous surface was carried out, numerous diverticula could be seen, and the rupture usually took place at the apex of one of these diverticula. He had spent some time searching veterinary literature of the past, and he had been unable to find any reference to such a condition in the lower animals, but he was told by his colleagues that it was by no means rare in the human subject, although in the small intestine it was distinctly rare.

That was merely a preliminary announcement, as he hoped to be able, at the next meeting, to present them with the history of the case and with specimens illustrative of the condition itself.

Mr. HENRY GRAY remarked that he would like to say something in reference to Dr. Sheather's case of bacillary

necrosis which he first suspected to be diphtheria in the cat. Until that night he was always under the impression that diphtheria in the cat *was* a bacillary necrosis. Many years ago—in 1896—he sent Sir John M'Fadyean several dead cats, and he could not convey the disease to cats by feeding them on milk containing the membranes. He (Mr. Gray) pointed out at that time that diphtheria of the cat was not contagious to human beings, refuting the statements of the late Dr. E. E. Klein, who stressed the point of the Local Government Board, at that period, that cats gave human beings diphtheria. Such a doctrine was against all his (Mr. Gray's) experience.

A few years ago Dr. Savage, M.O.H., County of Somersetshire, carried out a great number of experiments, and he failed to transmit diphtheria from the human being to the cat or to recover the human diphtheria bacillus from cats with their diphtheria. Nearly thirty years had elapsed between the making of the statement by Mr. Gray and the publication of Dr. Savage's findings, but the latter upheld the former. Notwithstanding these facts a great number of medical men ran away with the idea that cats were dangerous to human beings, and he thought that a good many still believed it.

As to the specimen shown by Professor Wright, he thought that if Professor Wright had got the idea that dogs did not have interstitial nephritis when the urine was perfectly clear he would overlook a great many cases. In days gone by he made hundreds of examinations of urine and found no trace of albumen or casts, and yet on *post-mortem* he discovered, as he suspected, interstitial nephritis. His experience was that it was very rare to find dogs over eight years of age free from valvular disease and also from interstitial nephritis; moreover, it was very rare to see anasarca and ascites in dogs suffering from valvular disease of the heart: he had seen it, but it was quite exceptional, and he attributed that to their horizontal position—the circulation was not so difficult. He put the vomition down as being toxic in nature: moreover, the majority of dogs suffering from pyorrhœa suffered from vomition in chilly, wet or changeable weather and he attributed that to infection or toxic absorption from the alveoli, because when the dogs lost their teeth they ceased to have recurrent attacks of sickness.

Mr. R. A. Willett stated that he was extremely interested in the tongue brought forward by Dr. Sheather. Within the last four months he had had a case of a family in which were three children, all of whom were diagnosed by the family doctor and a specialist from London as suffering from diphtheria, while all the rest of the family had bad colds and one other child had a sore throat. Both the doctor and the specialist said that undoubtedly the trouble originated from a cat. One cat certainly had some ulceration of the throat and of the tip of the tongue. That cat was destroyed and examined, but nothing whatever of a diphtheritic nature was found, either as regarded lesion or organism. The second cat was taken ill within three days. It was unable to eat, and there was intense salivation. In eight days it died, and a *post-mortem* revealed practically the same condition as that evident in the tongue shown there that night. It occurred to him whether the children diagnosed as suffering from diphtheria, were in reality merely suffering from sore throat due to the bacillus of necrosis, and that the doctor and specialist had made a mistake.

Dr. Sheather remarked that he thought that Mr. Gray had misunderstood him. His point was that that condition looked like a case of diphtheria, but there was no diphtheritic membrane there and he thought the case one of bacillary necrosis. A rather striking thing about the histological picture was the absence of reaction on the part of the tissues, for in bovine lesions produced by the bacillus one was accustomed to see a tissue reaction round the margin of the necrotic areas.

Major Kirk pointed out that in his report Dr. Savage stated that some cats had membrane deposits, and that he had isolated an organism, but it was not the true Klebs-Loeffler bacillus.

Captain Dunlop Martin said that he did not know if the Fellows remembered that some two or three years ago the *Daily Mail* published a half a column of matter dealing with an outbreak of diphtheria in New York. They stated that this outbreak was due to cats, because all the cats in the neighbourhood where this outbreak occurred were killed and the outbreak ceased immediately; that it was a case of cause and effect. He wrote to them about it and told them quite definitely that, so far, no true human diphtheria had been found to be caused by the cat; in fact, that it was impossible to affect the cat with the Klebs-Loeffler bacillus, and that he should be glad if they would give his letter of denial of the possibility of infecting the cat with human diphtheria, and *vice versa*, the same publicity that they had given to the positive statement in their paper. He had received no acknowledgment of his letter, and they took no notice of it.

Nominations for Fellowship. Mr. J. Stewart (London) was nominated for Fellowship of the Society, on the proposition of Professor McCunn, seconded by Professor Wright, and Dr. W. R. Wooldridge was also nominated, on the proposition of Professor Wooldridge, seconded by Colonel Young.

Elections. The elections were unanimously made of Mr. C. Formston, of Chester, and Captain W. J. Leyshon, of London.

The Annual Dinner.

The next item on the agenda was to give consideration to the nature of the Annual Dinner, with particular regard to the decision, which had been taken at an Ordinary General Meeting of the Society, to exclude ladies from participation therein, but that ladies be invited to attend a social function to be held on some other occasion each year.

The President remarked that he would like to say, as a preliminary, that he thought that decision was somewhat premature. It was rather too late to recall it now, but he had no objection to their reconsidering the whole question and coming to a decision.

Mr. McIntosh said that he would not detain them more than a few minutes, as his views on this question were well known to all of them.

He was of opinion that the decision arrived at, about a month ago, was hasty and ill considered, and he would warn the Fellows as to possible consequences if effect was given to this decision.

It was close on twenty years since ladies were invited to join with them in that annual function and, speaking as one who had attended all of them throughout that period, he was sure he was right in saying that their presence and support added greatly to the success of those evenings. It had been suggested that a second evening of an entirely social character to which ladies would be invited might be entertained, but he was afraid that this would result in splitting up the "Central" into two parties, with the possible result that neither evening would be a success. He might be wrong in this view and he hoped he was wrong if the suggestion was approved of by the majority.

Their main object should be to keep members together and not to divide them, and it was for that reason that he thought they ought to recall their previous decision and adhere to one evening as formerly and that ladies be invited. He moved accordingly.

The motion was seconded by Mr. J. WILLETT, who said that he had been a member of the Society for something like 33 years and he well remembered when the policy of inviting the ladies to the Dinner was championed by Mr. Forman and carried into effect, with uniformly successful results, for the number attending the function was largely increased and had remained so.

Major KIRK remarked that he would like to correct Mr. Willett by pointing out that the decision arrived at by the April meeting was not entirely to exclude ladies, but to have them present at a separate function. He thought this would be a retrograde step—if enforced—and believed that both functions would suffer seriously. In his view it was illogical and impossible to exclude ladies from the Annual Dinner, inasmuch as the Society had lady Fellows on its list of membership. Were these ladies to be denied the privilege of inviting their lady friends, whilst the male members were free to do as they wished? He considered that the annual event should be increasingly graced by the presence of lady guests, and that the Society should cater more and more for their pleasure and comfort. It did not add to, but greatly detracted from, their pleasure to have to listen to lengthy and tedious speeches upon veterinary politics, most of which were more or less reiterated year after year. For two years or more he had advocated making a change in the nature of the Annual Dinner with a view to making the event more sociable and less formal, and he now moved: "That the Society have a Dinner followed by a Dance, and that speeches be very greatly curtailed."

It was obvious that under the present regime, six persons seated round a table were stuck there for the whole evening and were quite unable to mingle sociably among their other friends.

He hoped the Fellows would consider his motion carefully and give it their support.

The motion was seconded by Dr. SHEATHER.

Following some further contributions to the discussion, the PRESIDENT observed that there was no opposition; they had had no observations from those who carried the motion at the April meeting, so he concluded that they must have deserted their camp. (Laughter.) He had two resolutions, upon which he would now ask them to vote.

Both resolutions were carried unanimously, and the questions of the date of the Dinner-Dance and where it should be held were left to the Dinner Committee, which was now appointed as follows:—the President, Secretary, Captain Balls, Major Kirk, Captain Townson and Professor Wooldridge.

THE ERADICATION OF BOVINE TUBERCULOSIS.

Arising from the receipt of a communication from the Secretary of the Scottish Branch, consideration was now given to the Scheme for the Eradication of Bovine Tuberculosis, which had been proposed by the West of Scotland Division, N.V.M.A., forwarded to the Branch, and sent to all the Divisions by that body.

The PRESIDENT informed the Fellows that the full text of the Scheme had appeared in the *Veterinary Record* of September 21st, and that he presumed that what they had got to do was to come to some decision either to support the scheme or to criticise it.

Mr. GRAY said that he quite agreed with that American plan, because everything we had adopted in the past had been an absolute failure: they had not reduced the incidence of tuberculosis in this country, so far as cattle were concerned, one iota. It was no good to get rid of the disease in one place and after that for the cattle to be contaminated from other areas or from the discarded reactors, and he thought this to be the next best scheme to testing the whole of the cattle in the country and killing the reactors. There would be opposition on the grounds of expense, but when he told them that human and animal tuberculosis cost this country twenty millions a year, they would realise that it was quite time that something thorough was done.

In the Channel Islands they had got rid of the disease from their cattle and, in consequence, there were none of those forms of tuberculosis in human beings that were contracted from cattle. He thought it had been estimated that thus to stamp out tuberculosis would cost us thirteen millions, and it would be better to spend that than to go on tinkering with the disease. The cost of eradication was no concern of the veterinary profession; that was purely a question for the public to decide. It was also no concern of ours to decide what the public should consume or not consume in the way of meat or milk. That was the province of the medical profession. Our business was to formulate a scheme to assist the livestock owner to eradicate the disease from animals in these islands.

Mr. PERRYMAN stated that the subject was one about which he had been concerned for many years. Two years ago they had a strong discussion at the Veterinary College, when he suggested that compulsory testing of the whole of the cattle of the country would be of the greatest value in eradicating bovine tuberculosis. Mr. Gray had said that they had made little headway, and that was perfectly true.

As to the objects of the West of Scotland Scheme, he thought none of them would cavil at the first five items. He felt that they should support any scheme put forward by any society, provided it really had a chance of logical termination, but when they put forward a scheme let it be one of which the veterinary profession could be proud, and not one which would enable others to say that the scheme we put forward was futile.

He certainly did not agree with all their suggestions; for instance, they made three divisions: accredited herds,

areas of application, and compulsory areas. Then, coming to details, they suggested in the first part of the scheme (dealing with accredited herds) that a system of testing which should be of a voluntary character should be carried out. His experience was (and he thought that some of the older Fellows in London would agree) was that no voluntary system of notification of a specific disease had been of any use. (Hear, hear.) The stock embraced by an accredited herd would be valuable animals, and if there was any class of stockowner that should carry out the extermination of this disease it was the owners of the accredited herds, and yet there they had suggested that a small sum—an annual amount of a few thousand pounds—should be put on one side for this scheme.

The scheme also said: "Reactors for which the owner refuses to accept £50 must be indelibly marked and disposed of outside the herd or area, as the case may be." That was a point that was raised by a few of them at the R.V.C. meeting two years ago: what would happen to these reactors? They would go out from those accredited herds to the small stockowners, and the poor beggars would have to suffer for it, and yet the money was to be paid for that first lot—the accredited herds.

When the owners of accredited herds had cleared their stock of tuberculosis they came down to "areas of application": in their case they would see that "in the first instance, 75 per cent. of the cattle in a given area must be in herds which are accredited or in process of accreditation. The owners of these herds may then make application to have eradication compulsorily imposed on the whole area." To his mind, that seemed a very harsh method: they were going to clear their own stock and then they were going to make compulsory application for the remainder. Most men objected to being compelled to do anything by their neighbours, and here he thought no neighbour would entertain such a suggestion: if he did, there would be engendered bad feeling all the way round. For that reason he thought that the Society should be very careful before they attempted to support the scheme in regard to details.

Mr. BYWATER said that he had some small knowledge of this disease, which produced ninety per cent. of his work, and he felt that from the public health point of view something ought to be done, and done quickly, to eradicate tuberculosis. This country was quite a small one, and anything which was attempted should be attempted in the whole of England, Scotland and Wales at one time, but the question arose—was the time ripe at which to start a national campaign against tuberculosis? He thought that, from the point of view of the milk supply, it was not. But he would suggest that the Tuberculosis Order had not yet had a fair chance. The first step was to have the compulsory routine inspection by veterinary surgeons of all the herds throughout the country.

In view of the thousands of pounds spent every year on human tuberculosis alone, it was worth while spending a large sum of money to eradicate the disease from bovines, quite apart from the fact that it would be of inestimable benefit to agriculture.

Captain LUCKING expressed the view that the time was not opportune for the application of the drastic measures embodied in the West of Scotland Scheme. He thought that the work of the Ministry of Health was producing a great number of tubercle-free animals. He had in his charge at the moment about a thousand of them, and he was of opinion that, provided the milk could be sold, the farmer would produce milk from tubercle-free animals. They would never get rid of tuberculosis by inspection. It was a very difficult thing to eradicate tuberculosis from a herd by testing: they could test a herd with tuberculin for years and yet they would often get a few reactors—they escaped the test. Provided they could get a public demand for tubercle-free milk they could, in a few years' time, bring forward some such scheme as was now proposed, and with good prospect of success.

Dr. SHEATHER supported what Captain Lucking had said. It was only a few weeks ago that Dr. Huddleston, of the United States, was in his laboratory, and he was asking him about the eradication of tuberculosis from American herds that were constantly tested and re-tested, and Dr. Huddleston said that they always picked out one or two reactors. Therefore it was not a simple matter to pick out tuberculous animals, even by testing.

Professor MCCUNN stated that he desired to support what had been said with reference to the eradication of tuberculosis from cattle, and to say that he supported it both on behalf of the farmer and of the cow: he did not worry much about the public. He was sure that if they could eradicate tuberculosis from cattle they would do away with fifty per cent. of the febrile ills of cattle, by which means they would help the farmer. As regarded the danger to human beings, his personal opinion was that that was exaggerated. The thing that caused most harm to people, and to children especially, was not bovine tuberculosis; it was human tuberculosis, and the cases of bovine tuberculosis that occurred in them were relatively not many. His whole point was that it was their job, as veterinarians, to look after the health of the cows and the welfare of the farmer, and the medical man's job to look after that of human beings.

Professor WOOLDRIDGE said that in his view there was no doubt whatever that bovine tuberculosis was a source of serious danger to children. At the same time, he agreed with Professor McCunn when he said that the bulk of tuberculosis in children was of human origin. If but a proportion, however (and it was by no means negligible) was from a bovine source and was preventable, then he said that they should take whatever steps they could to prevent it. (Hear, hear.)

Mr. MCINTOSH thought that the meeting had got rather away from the subject before it. As to how far the bovine species were responsible for human infection, did not at the moment arise. If they were to discuss this matter in a general way, they would be there till doomsday.

They were asked to discuss the merits or de-merits of a suggested Scheme for the Eradication of Tuberculosis and he thought that a very useful suggestion in that direction might be helpful in evolving a workable scheme whereby the incidence of the disease could be reduced or, in time, entirely eradicated.

If members would confine themselves to this aspect of the subject they would probably get on with the business.

Captain DUNLOP MARTIN said that he thought that the time was more than ripe for us, as a profession, to make

some very determined and earnest stand in that matter of dealing with tuberculosis in cattle throughout the whole country. In his view, it was impossible to get any further forward with any partial scheme. The matter of the infection of children was one of the factors that must come into their purview in dealing with the problem. He had read on many occasions that the veterinary profession was the first line of defence in that matter, and he should support any scheme that was going to be fully supported by them as a profession. He thought it was a standing disgrace to the profession that they had not taken a firm line in the matter before. (Hear, hear.)

Professor WOOLDRIDGE pointed to the fact that if they were to take any determined step to eradicate tuberculosis they had got to use a considerable amount of public funds, and if they used as a lever the fact of the infliction of incidental damage to the human population they would be more likely to get the funds to prosecute the work with which they were immediately concerned.

Major GRAHAM REES-MOGG, speaking as the owner of a herd of cattle and as a veterinary surgeon, was able, he said, to look at the matter from two points of view. Replying to a statement made by Mr. Gray, in the course of his remarks, that it was an easy matter to stamp out bovine tuberculosis because glanders was stamped out in horses, Major Rees-Mogg failed to see Mr. Gray's argument. Glanders was fatal to human beings and that was why it was easy to tackle, but tuberculosis was not, in the sense that if a *post-mortem* was made on any person in that room, somewhere a tuberculous lesion would probably be found. Supposing every animal was tested and every animal that did not pass the test was destroyed, what was going to happen to the milk supply ? If another test were done the following year there would be sure to be some that would not pass, though they had previously passed the year before. He agreed with Captain Lucking that the time was not ripe for that drastic proposal.

Dr. W. R. WOOLDRIDGE remarked that it seemed to him that the profession was right to consider ideas for the stamping out of bovine tuberculosis. But if these ideas were to go forth as the specific recommendations of the profession, as a profession, then, that being so, he did not think that the Society could deal satisfactorily with any detailed scheme by discussion in open meeting for an hour or two. It therefore appeared to him that the profession, that was to say, the "National," should appoint a committee of people of experience both in research and on the practical side to go into the whole question and to draw up a scheme worthy of the profession, if they considered such a course advisable. The Council of the "National" and the Societies could then discuss the scheme and decide either to support that scheme or to put it on one side. Such a preliminary thorough enquiry by men of the necessary experience was essential before we should put forward, to the agriculturalists and to the public, any scheme as the definite recommendation of the veterinary profession.

Captain DUNN was of opinion that the best thing they could do was to get the public to insist that they must be provided with non-tuberculous milk. They must get the public interested, and the medical profession also. In many hospitals ordinary milk was bought instead of tuberculin-tested milk. He thought the time had not yet come when a scheme such as that now before them could go forward with any chance of success. They must prepare the ground carefully first.

It was eventually agreed to forward to the Scottish Branch the following resolution, which was proposed by Mr. PERRYMAN, seconded by Mr. GRAY, and carried unanimously :—

"That this Society approves with satisfaction the efforts made by the West of Scotland Division to formulate a working scheme for the eradication of bovine tuberculosis.

"Whilst agreeing with the objects as set forth, it is of opinion that the scheme is lacking an equitable basis and will consequently prevent the majority of stockowners making voluntary efforts to stamp out the disease.

"The Society feels that the details of the scheme cannot be satisfactorily settled until they have been considered by the profession through the medium of a Committee appointed by the N.V.M.A."

On the proposition of Professor WOOLDRIDGE, seconded by Mr. F. W. WILLETT, it was agreed to forward a copy of the above resolution to the N.V.M.A. for information.

SHEEP SCAB.

The meeting now considered a printed report of the recently-held Conference between the Royal Agricultural Society, the National Sheep Breeders' Association and the Minister of Agriculture with reference to the reduction, and, if possible, the stamping out of sheep scab in Great Britain. [The text of this report was printed in the *Veterinary Record* of 13th July, 1929.—Ed.]

Mr. BYWATER said that he thought that the provisions of the Sheep Scab Order of 1928 were quite sufficient to stamp out sheep scab in this country if they were efficiently enforced. The present method of allowing dipping to be supervised by people other than members of the veterinary profession—who, although often very enthusiastic, did not grasp the essentials involved—rather militated against the success of the Order. It was his opinion that if the Ministry of Agriculture and Local Authorities were to make special efforts in those districts which were known as sheep scab areas, the present regulations would be quite sufficient to stamp out the disease.

It was now suggested by Major KIRK that, in view of the lateness of the hour, the meeting should adjourn if there was any likelihood of the sheep scab discussion extending to the length of that concerning the previous item on the agenda.

The PRESIDENT said that he thought they might well discharge their obligations concerning that matter by expressing their recognition of the importance of the subject and passing to the next business. They all recognised its importance, but they were powerless to do anything.

Professor WOOLDRIDGE rose to say that he was of opinion that dipping alone was not likely to eradicate sheep scab. He thought that if each individual sheep were handled, the dip being properly massaged into the fleece, far better results would be obtained.

Mr. MCINTOSH pointed out that it was not so much for the cure of sheep scab as for its prevention that those recommendations were put forward.

The HON. SECRETARY read a covering letter from the N.V.M.A., and, after further discussion it was agreed, on the proposition of Mr. MCINTOSH, seconded by the

HON. SECRETARY, to forward the following resolution in reply:—

"That this Society is in sympathy with the Royal Agricultural Society in the efforts of that body to eradicate sheep scab, and is willing to lend any assistance in its power."

The meeting concluded with the passing of hearty votes of thanks to the President for his conduct of the proceedings and to those gentlemen who had provided *post-mortem* specimens and had recounted interesting cases.

J. F. MACDONALD, *Hon. Secretary.*

Pit Ponies in the Mines.

We reproduce below letters relative to the above subject which have been sent to the local Press in consequence of its discussion at a public meeting held under the auspices of the local branch of the R.S.P.C.A. at Newcastle-on-Tyne on Thursday last.

(1) *From the National Veterinary Medical Association of Great Britain and Ireland.*

30th November, 1929.

Sir,—My attention has been directed to a meeting which is to be held in Newcastle-on-Tyne on December 5th, to consider the question of "Pit Ponies in the Mines," and, judging from recent reports in the daily Press, I assume that arguments will be brought forward for the total removal of ponies from the pits. I therefore write to express certain aspects of the case which should be given due consideration in any discussion on the employment of animals in mines.

Broadly, it is safe to say that mechanical haulage has already displaced the animal so far as it is practicable to do so, yet there remain upwards of fifty thousand animals employed in the mines of this country.

Because certain mines find it possible to dispense completely with the use of animals it is unreasonable to suggest that every colliery could do likewise, without considering the varying natural conditions and methods of working found in the different coalfields. These factors are of great importance. In many cases they are such as to render impossible the substitution of the pony by a system of conveyors or locomotives, for this is what complete removal of the ponies would mean, since rope haulage is already in use wherever possible.

Assuming, for the moment, that it was possible to remove all animals from the mines, one might reasonably ask what is to be the fate of the 50,000 animals now employed. In the absence of any demand they could not be sold, except possibly for slaughter, since many of them are too small for use on the surface. The loss of markets would have a disastrous effect on our British breeds of ponies, and finally destroy an industry which has been hard hit by the long continued depression in the coal trade. It would be certain to leave unemployment in its train.

This Association has no sympathy with the ill-treatment of animals either on the surface or in the mine; in fact, many veterinary surgeons are employed by colliery companies to supervise the ponies used in their mines, with advantage both to the animals and to the cause of efficiency.

Finally, it may be stated that in a well-managed stud cases of deliberate cruelty are uncommon, and that much of the agitation against the use of animals in mines might be allayed if the example of those colliery companies which already make provision for veterinary supervision of their animals, were to be generally followed.

Yours faithfully, F. KNIGHT, *General Secretary.*

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(2) *From the National Horse Association of Great Britain.*

2nd December, 1929.

Dear Sir,—It has been brought to our knowledge that a Meeting under the auspices of the local branch of the R.S.P.C.A. is to be held at Newcastle-on-Tyne on the 5th December to discuss the subject of "Ponies in Mines" which we understand is the result of recent alleged cruelty in respect of pit ponies, and a resolution put forward at the Annual Meeting of the National Equine Defence League at Caxton Hall in October for the complete withdrawal of horse, mule and pony from the mines within a period of three years.

On behalf of the National Horse Association of Great Britain, we desire to express our views on the situation generally, through the medium of your paper, which we trust you will see your way to publish before the date of the meeting:—

(1) In 1913, the year before the War, the number of ponies employed in mines amounted to 73,024; in 1925 the number stood at 60,852, and in 1926, the year of the strike, the number was reduced to 56,762. Reduction has related more to depression in the coal industry than to replacement by mechanical traction. Economically it has been abundantly proved that the employment of ponies in mines carries advantage over any form of mechanised haulage, and at the present time the coal industry is not in a position to withstand heavy overhead charges. Moreover, in certain mines, the occurrence of faults in seams—termed "risers" and "dippers"—is best negotiated by pony labour.

To meet the general demand for ponies, which largely includes that for mining districts, the National Pony Society, and the various Pony Breeding Societies, have taken an infinity of trouble to preserve and encourage the breeds of ponies native to this country—Welsh, Dales, Fell, Exmoor, Dartmoor, New Forest, Shetland, Iceland and others, including the crossed small Shire horse and the Welsh mare. Withdrawal or reduction of the approximate 50,000 ponies which exist in English and Welsh mines to-day would therefore be a severe blow to the valuable pony production of this country.

In addition, we desire to point out the danger from explosions in mines attendant on the use of mechanical traction in underground workings, a risk which is not incurred in pony haulage. In short, it may be justly claimed that as a feeder to mechanical haulage generated, say, at the pit head, animal haulage is more mobile, flexible, and certainly more economical than any other system.

(2) As regards cruelty, we are convinced that, generally speaking, there are no grounds for such allegations. We suggest that if there is any doubt on this point, or if the importance of special care is not sufficiently recognised by some colliery companies, provision might be made under the Coal Mines Act whereby a suitable systematic, and easy working supervision could be exercised by a duly accredited Veterinary Staff, organised as a service and under a Chief Veterinary Officer in the Mines Department.

We feel sure that this would be satisfactory to Humane Societies, and to veterinary professional principles. To raise the standard of efficiency of the animals, and to enforce the greatest amount of care in their management is a better policy and more economical than replacement by mechanical means of unproven efficiency, which, on account of the varying natural conditions of mines, could not be universally adopted.

Yours faithfully,

CECIL G. ARGLES, *President.*
WALTER GILBEY, Bart., *Treasurer.*
JOHN MOORE (Major-General), *Vice-Chairman.*
R. A. BROWN, *Secretary.*

NOTES AND NEWS.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

Dec. 7th—Meeting of the North of England Division, N.V.M.A., at Armstrong College, Newcastle-on-Tyne.

Dec. 9th—Meeting of the Editorial Committee, N.V.M.A., 10 Gray's Inn Square, London, W.C.1, at 4-30 p.m.

Dec. 13th—Meeting of Midland Counties Division, N.V.M.A., at Birmingham.

Dec. 16th—Annual Dinner of the Central Division, N.V.M.A., at the Criterion Restaurant.

Central Veterinary Society.

We would like to draw the attention of Fellows of the Central Veterinary Society to the fact that the Annual Dinner is to be followed this year by a Dance, and that speeches are to be reduced to an absolute minimum. As this arrangement is quite an innovation, the Society are very anxious that the fullest support should be afforded, and that applications for tickets should be forwarded early in order to avoid disappointment.

North of England Division, N.V.M.A.

The Secretary of this Division writes to inform us that the report of the September meeting, published in the *Record* of November 16th, was in error in stating that copies of the resolution which was passed regarding the Scheme for the Eradication of Bovine Tuberculosis were to be sent to the N.V.M.A. and the West of Scotland Division. The latter should have read "Scottish Branch."

Victoria Veterinary Benevolent Fund.

We feel that Mr., Mrs. and Miss McIntosh hit upon a singularly happy and enjoyable plan for augmenting the funds of the Victoria Veterinary Benevolent Fund when they decided to run a Whist Drive for this Charity on Saturday last. The result—a donation of £10 to the Fund and participation in an exceedingly pleasant evening—should stimulate others to follow their example. The approach of Christmastide adds an element of seasonableness to this suggestion of practical help for those in dire need of it.

Personal.

Appointments. Amongst the appointments made by the Secretary of State for the Colonies during the month of November were those of Mr. H. H. Holman, M.R.C.V.S., as Veterinary Officer, Gold Coast, and Major E. G. Turner, D.S.O., as Inspector, Veterinary Services, Iraq Army.

Parliamentary Notes.

Diseased Meat. Replying to Mr. Kedward, on November 21st, Mr. Greenwood said he could not state the number of diseased carcases of imported meat which were condemned as unfit for human consumption. He thought the present regulations sufficient to protect the public against the importation of diseased meat.

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Tuberculous Milk. Mr. Greenwood told Sir Rennell Rodd, on November 21st, that he was satisfied that local authorities exercised their powers of supervision and control over milk supplies in an efficient manner, having regard to the difficulties caused by the mixing of milk, and the delays necessary in obtaining reports on the bacteriological examination. Infants' deaths from bovine tuberculosis traceable to milk would nevertheless continue to receive his careful attention. Dr. Davies thereupon asserted that bacteriological examination of milk for tubercle was hopelessly inadequate in England.

Adulteration of Milk. Mr. Greenwood, on November 25th, stated that during 1928 the Ministry of Health corresponded with nineteen local authorities about the adequacy of the numbers of samples of milk taken for the purpose of checking adulteration. From most of these a sufficient explanation was forthcoming or arrangements had been made for more samples to be taken.

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Sheep Scab. Lieut.-Colonel Windsor-Clive asked whether the Minister of Agriculture had received a copy of a resolution passed by the Shropshire County Council on the eradication of sheep scab; and whether he proposed to take any action in the matter, in view of the withdrawal in May, 1926, of the Order which placed upon sheep owners the onus of eradicating sheep scab from their flocks.

Dr. Addison (Parliamentary Secretary to the Ministry of Agriculture)—The answer to the first part of the question is in the affirmative. The regulations contained in the Sheep Scab Order of 1928 require the immediate reporting of any suspected case of sheep scab and the treatment of infected flocks by double dippings, and provide for the application of special restrictions to infected areas. These regulations are considered fully adequate to secure the necessary reduction of the disease, provided that owners report promptly any case of the disease amongst their flocks. Special appeals have been made through Local and other Authorities concerned during the current year with a view to securing a fuller measure of co-operation from stock owners in this connection.

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Hysterical Sheep Dogs. Colonel Clifton Brown asked if the Minister of Agriculture was aware that the comparatively new disease of hysteria was seriously affecting sheep dogs and other dogs in this country; and what steps his Department was taking to investigate the cause of this ailment and to find a cure.

Dr. Addison—I am aware of the occurrence of hysteria among dogs in this country, and although no cases in sheep dogs have been brought to my notice, they are probably susceptible to the condition. Research into the disease is in progress at the Royal Veterinary College.

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Foot-and-Mouth Disease. The Minister informed Mr. Mills that the cost of dealing with foot-and-mouth disease in the year ended 31st March last and in ten previous financial years was:—

	£		£
1928-29 ...	... 87,871	1922-23	... 98,157
1927-28 ...	... 215,215	1921-22	... 676,722
1926-27 ...	... 216,646	1920-21	... 139,227
1925-26 ...	... 311,980	1919-20	... 82,338
1924-25 ...	... 613,782	1918-19	... 11,543
1923-24 ...	2,996,019		

The above figures excluded Headquarters administrative expenditure and other expenditure of the local authorities.

Mr. Mills, who inquired as to the steps taken to disinfect the soil upon which infected cattle were grazing, was informed that as disinfection of pastures by chemical agents was generally impracticable, restrictions were maintained on infected fields until light and air had rendered the virus of the disease inert. Restocking of such pastures was limited until it was reasonably certain that the virus was dead.

The Minister informed Commander Bellairs that he had no evidence showing that imported second-hand clothing was a source of danger from the point of view of foot-and-mouth disease infection.

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Diseases of Swine. The Minister informed Mr. Granville that attention was already given to swine diseases, and it was the intention of the Ministry to strengthen the staff at Weybridge and to give increased attention to these diseases.

Arrangements are being made in Belfast to erect a tablet to the memory of James Boyd Dunlop, the inventor of the pneumatic tire, at 28 May Street, where he practised as a veterinary surgeon, and where the tire was invented.

CORRESPONDENCE.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents

N.V.M.A. and Appointments.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—It has been most gratifying to all members of the profession to note the recent actions of our National Association with regard to the conditions of appointments offered to our profession.

It is most unfortunate that, in one of the cases in which it was decided that the conditions of a proposed appointment did not comply with the scale drawn up, the method of dealing with the proposed appointment has been such as may undo any good that should result, and must place certain of our members in an unfortunate position, besides revealing what may be mistaken for a lack of unity and loyalty in our ranks.

It would appear that instead of refusing to insert an advertisement in *The Veterinary Record* and giving notice of such refusal in a LATER issue, it would tend towards unanimity of action were it announced at the EARLIEST opportunity that the proposed appointment is to incur the Association's ban. It should not be overlooked, as has apparently been done, that appointments may be advertised in other journals than *The Veterinary Record*. I am, yours faithfully, S. SHARP.

The Poplars,
Boston Spa,
Yorks.
23*rd November*, 1929.

Torsion of the Uterus in the Cow.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—On opening my *Record* this evening after spending about three hours, partly in a wet field, during severe hail-storms, delivering a heifer affected with torsion, I felt quite envious of those people who can get over this difficulty without rolling.

I must admit I have never tried: I have not got the necessary arm strength to correct the position by grasping a limb and rotating the uterus as I once read of being done; and as for correcting torsion, as found in this district, by manipulation, I fail to see how it is possible to achieve one's purpose: the only case of which I know where this was attempted ended in complete disaster.

In the past ten years I can claim at least an average of twenty such cases per annum, varying, firstly, from what cannot definitely be classified as torsion (inability to decide) when the calf lies on its side and fails to come back into the vagina, and when one-half complete turn (or roll) of the dam brings the calf into position and delivery is simple, to secondly, where one finds the neck of the womb not sufficiently dilated and the toes of the calf sticking up towards the roof of the vagina, or no part of the calf in the vagina, and a thin rope-like band of muscle is felt on the floor of the Os; and to, thirdly, the corkscrew, undoubted case of torsion.

I often find the case where the torsion is not so pronounced the most difficult to correct.

The greatest trouble I find is that most often the Os does not dilate normally after correction of the torsion, and this is the time when manipulation and *patience* are called for. I find that it is no good leaving the animal and hoping that time will improve matters, for if left alone, all uterine movements seem to cease, and only by gradually pulling on the limbs, and manipulating the walls of the Os, can parturient reactions be upheld.

I have had one or two cases where I failed to reduce the torsion, most probably due to adhesions, and where the Os completely failed to open, and where, more particularly in posterior presentations, rupture of the uterine walls took place owing to incomplete dilation of the Os. In spite of these casualities I do not consider the condition very troublesome; rarely does the dam succumb, and in a very large percentage of cases the calf is born alive. The death of the calf in most cases results from separation of fœtal membranes from the uterus, which takes place very quickly as a rule in torsion.

Rolling the cow is a simple matter (I prefer a field to a shed)—the heavy work is done by others—and in my opinion easier to the operator who is suitably clothed, than manipulating for half an hour.

In the case in question to-day, after correcting the torsion, which was more than usually severe, I could feel the toes, which proved to be the hind ones, with my fingers, but could only get a hand into the womb by gradual forced rotation. The foot was held and the hand withdrawn in the same manner. The foot was roped. The process was repeated and the second foot withdrawn. Gradual light traction on the limbs and the pushing up of the neck of the womb over the increasing bulk of the calf effected successful delivery, in this case, of a dead calf.

Tavistock. H. FRASER.
23*rd November*, 1929.

The Production of Clean Milk.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—Of late a great deal has been said with regard to the scheme for clean milk production as elaborated by the Milk (Special Designations) Order, 1923. One has observed that while there has been an abundance of destructive criticism there has been no attempt at construction and no new ideas or suggestions have been forthcoming with a view to making a success of what is now generally understood to be something of a fiasco.

It has occurred to me that failure is largely due to disregard of the old slogan: "It pays to advertise."

Those in authority seem to be convinced that the fault lies in the fact that the names given the different grades of milk are misnomers and that until more accurate designations are applied, *i.e.*, names which the public can readily understand, the scheme will continue to be the failure it undoubtedly has been since its inception. Here, to a certain extent, one must agree, but it would seem that the actual names given to the various grades of milk are secondary considerations and that the root of the trouble is to be found in the fact that the scheme as a whole has never been put clearly before the public. How many manufacturing firms would attempt to market their products without some attempt at advertisement? I am convinced that if the public could pick up a newspaper, such as the *Daily Mail*, and read on the front page in large type a concise description of each grade of milk and exactly how public health will benefit from its production, the returns in purchase money for such milk would exceed the outlay in advertising by a very large sum in a very short time.

I cannot conceive how the re-naming of the different grades of milk will affect its sale in the slightest degree unless these names are brought to the public notice in no uncertain manner.

The Ministry of Health have emphasised their desire to encourage graded milk production and this can only be done by creating a market for its sale. I feel sure that the necessary market can be created by an advertising campaign on a fairly extensive scale and I am convinced that until this is done no better results will be forthcoming than have hitherto been obtained.

I am, Sir, yours faithfully, GEO. TULLIS,
Assistant Veterinary Officer.

Veterinary Department,
Town Hall,
Sheffield.

The Editor acknowledges the receipt of the following:—

Report of a meeting of the North Midland Division, N.V.M.A., from Mr. W. Tweed, Hon. Secretary.

Communications from Mr. G. B. Brook (Abingdon), Dr. G. W. Clough (Royal Veterinary College), Dr. F. P. Minett (London), Major H. Kirk (London), Mr. R. Paine (Grahamstown, South Africa), Capt. A. W. Noel Pillers (Liverpool), and Mr. G. B. Purvis (Pahang, F.M.S.).